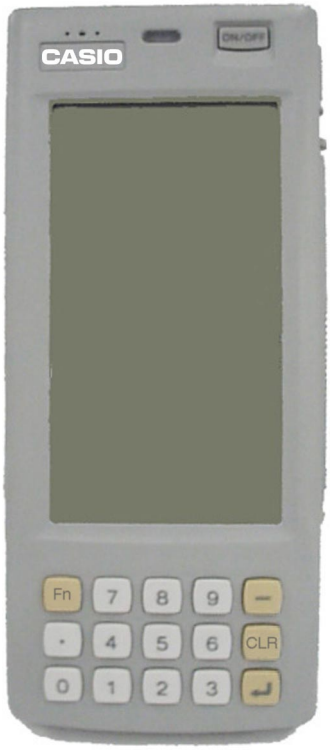
SERVICE MANUAL

(without price)

HANDY TERMINAL

IT-2000 (PX-704)

JAN 1998



INDEX

CASIO®

CONTENTS

1. SPECIFICATIONS 1
   - 1.1 CPU 1
   - 1.2 Hardware 1
   - 1.3 Memory 1
   - 1.4 Touch Panel 1
   - 1.5 Display 1
   - 1.6 Sound 1
   - 1.7 Key 1
   - 1.8 Interface 1
   - 1.9 PC card 2
   - 1.10 Power supply 2
   - 1.11 Durability 2
2. OPTIONS 3
3. INTERFACE PIN ASSIGNMENT 5
   - 3.1 8 Pin serial I/F 5
   - 3.2 14 Pin serial I/F (RS-232C) 5
   - 3.3 Card I/F 6
4. SYSTEM DIAGRAM 8
   - 4.1 System diagram 8
   - 4.2 Block diagram 9
   - 4.3 PCB diagram 10
   - 4.4 Power supply diagram 11
5. CIRCUIT DESCRIPTION 12
   - 5.1 Memory 12
   - 5.2 KBC 15
   - 5.3 Communication 21
   - 5.4 PC Card 22
   - 5.5 Power Supply 24
6. DISASSEMBLY 26
   - 6.1 Removal of the main battery and the backup batteries 26
   - 6.2 Removal of the battery pack cover 26
   - 6.3 Removal of the Lower case block 26
   - 6.4 Removal of SUB ass'y PCB 27
   - 6.5 Disassembly of the Middle Case Block 27
   - 6.6 Disassembly of Upper Case Block 29
7. DIAGNOSTIC PROGRAM 30
   - 7.1 General 30
   - 7.2 Inspection Detail 32
   - 7.3 Special tool 33
   - 7.4 Diagnostic test 35
8. CIRCUIT DIAGRAMS 53
   - 8.1 Curcuit diagram INDEX 53
9. EXPLODED VIEW 75
10. PARTS LIST 76

1. SPECIFICATIONS

1.1 CPU

CPU: Intel 80486 GX (32 bit)
Clock: 25M Hz

1.2 Hardware

Configuration: IBM PC AT Architecture and dedicated hardware

1.3 Memory

Main memory:		
	4MB	16Mbit DRAM × 2
File memory:		
	0MB	(for D10 Model)
	4MB	32Mbit NAND Flash × 1 (for D20 Model)
	8MB	32Mbit NAND Flash × 2 (for W30, D30P Model)
DOS & BIOS Memory:		
	1MB	8Mbit Flash E^2PROM × 1
MASK ROM:		
	8MB	64Mbit MASK ROM × 1 (W30 Model only)
Video Memory:		
	512KB	4Mbit DRAM × 1
HW Window Memory:		
	32KB	256Kbit SRAM × 1

1.4 Touch Panel

Type:	Analog Type
Resolution:	192 × 384 dots

1.5 Display

LCD Type:		FSTN semi-transparent LCD
Resolution:		192 × 384 dots
Back light:		EL back light (with auto-off function)
Character type:		Alpha-numeric (ANK), user defined characters
Character size:		
	Normal size (Alpha-numeric)	12 dots: 6 × 12 dots 16 dots: 8 × 16 dots 24 dots: 12 × 24 dots
	Double size (Kanji)	12 dots: 12 × 12 dots 16 dots: 16 × 16 dots 24 dots: 24 × 24 dots
Contrast:		
	VGA mode	4 gradation (Internal control 16 gradation)
	HW Window	2 gradation

1.6 Sound

Sound source:	Buzzer
Volume:	4 steps (Max/Mid/Min/Off)

1.7 Key

Numeral keys:	11 (Including decimal point)
Function keys:	4 (“–”, “Fn”, “CLR”, “Return”)

1.8 Interface

[COM1]:
8 pin serial I/F

Purpose:	for connections of BCR, PC	
Baud rate:	300 ~ 115,200 bps	
Transfer type:	Start-stop synchronous transmission	
I/F level:	SD(1)	less than –5.0 V
	SD(0)	more than +5.0 V
	RD(1)	less than +0.6 V
	RD(0)	more than +2.4 V

[COM2]:
14 pin serial I/F (RS-232C)

Purpose:	for dedicated peripheral devices only	
Baud rate:	300 ~ 115,200 bps	
Transfer type:	Start-stop synchronous transmission	
I/F level:	SD(1)	less than –5.0 V
	SD(0)	more than +5.0 V
	RD(1)	less than +0.6 V
	RD(0)	more than +2.4 V

Infrared (conforms to IrDA Ver. 1.0)

Purpose:	for data transfer to I/O box
Baud rate:	2,400 ~ 115,200 bps
Transfer type:	Start-stop synchronous transmission
Transfer distance:	60 cm

Infrared (conforms to IrDA Ver. 1.1)

Purpose:	for data transfer to I/O box
Baud rate:	0.576/1.152/4M bps
Transfer type:	Flame synchronous transmission
Transfer distance:	60 cm

1.9 PC card

Conforms to PCMCIA 2.1 standard
Supply voltage: 3.3 V/5 V

1.10 Power supply

Main Battery

Type:	Lithium ion battery pack NP-500
Operating duration:	8 hours (Calculate: Display = 1:10, 20 °C, Back light = off)

Sub batteries

Type:	Primary: Coin type lithium ion battery CR2032
	Secondary: Rechargeable battery IVR2430
Backup duration:	2 weeks

1.11 Durability

File memory (NAND Flash):	Erasing 500,000 times
Touch panel:	100,000 characters
Back light:	2,500 hours (Half life period)

2. OPTIONS

I/O BOX

- IT-2060IO-E (Satellite I/O BOX)
- IT-2065IO-E (Master I/O BOX)

Battery pack

- DT-9023LI (Lithium ion battery pack)

Charger

- DT-9021CHG-E (for Lithum ion battery)

Cable

- DT-881RSC (MODEM cable between IT-2060/2065IO-E/9-pin female and PC/25-pin male)
- DT-822RSC (Cross cable between IT-2060IO-E and PC/25-pin male)
- DT-883RSC (Cross cable between IT-2060IO-E and PC/25-pin female)
- DT-887AX (Cross cable between IT-2060IO-E and PC/9-pin female)
- DT-888RSC (Modular cable between IT-2060/2065IO-E and IT-2060/2065IO-E, 6-pin and 6-pin)
- DT-9689AX (RS-232C 9-pin cable between IT-2000 and PC)
- SB-751HF (SCSI cable between IT-2065IO-E and PC :Centro 50-pin full male)
- SB-752HH (SCSI cable between IT-2065IO-E and PC :Centro 50-pin half male)
- SB-753HP (SCSI cable between IT-2065IO-E and PC :Pin type half 50-pin male)

Card

Conforms to the PCMCIA 2.1 standard.

- DT-635MC (S-RAM/256 Kbytes)
- DT-636MC (S-RAM/512 Kbytes)
- DT-637MC (S-RAM/1 Mbyte)
- DT-9031BFMC (F-ROM/4 Mbytes)
- DT-9032BFMC (F-ROM/6 Mbytes)
- DT-9033BFMC (F-ROM/10 Mbytes)
- DT-9034BFMC (F-ROM/20 Mbytes)

Scanner

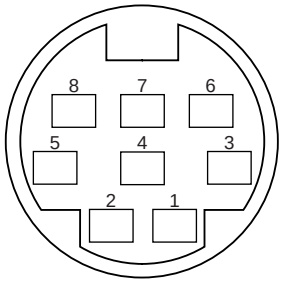
- DT-9650BCR (Pen type Bar Code Reader with built-in decoder)
- DT-9656BCR (Touch type Bar Code Reader with built-in decoder)

AC adaptor

- DT-825ADP-U (120VAC, for IT-2060IO-E and IT-2065IO-E)
- DT-825ADP-G (230VAC, for IT-2060IO-E and IT-2065IO-E)
- DT-9020ADP-U (120VAC, for IT-2000)
- DT-9020ADP-G (230VAC, for IT-2000)

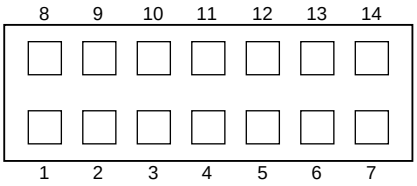
3. INTERFACE PIN ASSIGNMENT

3.1 8 Pin serial I/F



PIN No.	Signal Name	Description
1	SD	Send data
2	RD	Receive data
3	RS	Request to send
4	CS	Clear to send
5	VOUT	Power
6	GND	Ground
7	ER	Equipment ready
8	DR	Data set ready

3.2 14 Pin serial I/F (RS-232C)



PIN No.	Signal Name	Description
1	GND	Ground
2	GND	Ground
3	NC	No Connect
4	SD	Send data
5	RD	Receive data
6	RS	Request to send
7	ER	Equipment ready
8	CS	Clear to send
9	CI	Carrier indicater
10	DR	Data set ready
11	CD	Carrier detect
12	EXSW	External Switch
13	V_H	Power
14	V_H	Power

3.3 Card I/F

3.3.1 Memory Card Interface

Memory Card Interface Signals

Pin No.	Signal Name	I / O	Description	Pin No.	Signal Name	I / O	Description
1	GND		Ground	35	GND		Ground
2	D3	I/O	Data3	36	CD1#	O	Card detect1
3	D4	I/O	Data4	37	D11	I/O	Data11
4	D5	I/O	Data5	38	D12	I/O	Data12
5	D6	I/O	Data6	39	D13	I/O	Data13
6	D7	I/O	Data7	40	D14	I/O	Data14
7	CE1#	I	Card enable 1	41	D15	I/O	Data15
8	A10	I	Address10	42	CE2#	O	Card enable2
9	OE#	I	Output enable	43	VS1#	I	5 V Detect
10	A11	I	Address11	44	RFU		Reserve
11	A9	I	Address9	45	RFU		Reserve
12	A8	I	Address8	46	A17	I	Address17
13	A13	I	Address13	47	A18	I	Address18
14	A14	I	Address14	48	A19	I	Address19
15	WE#/PGM	I	Write enable	49	A20	I	Address20
16	RDY/BSY#	O	Ready/Busy	50	A21	I	Address21
17	Vcc		Power	51	Vcc		Power
18	Vpp1		Programming power1	52	Vpp2		Programming power2
19	A16	I	Address16	53	A22	I	Address22
20	A15	I	Address15	54	A23	I	Address23
21	A12	I	Address12	55	A24	I	Address24
22	A7	I	Address7	56	A25	I	Address25
23	A6	I	Address6	57	RFU		Reserve
24	A5	I	Address5	58	RESET	I	Reset
25	A4	I	Address4	59	WAIT#	O	Wait
26	A3	I	Address3	60	RFU		Reserve
27	A2	I	Address2	61	REG#	I	Atribute memory select
28	A1	I	Address1	62	BVD2	O	Battery voltage detect2
29	A0	I	Address0	63	BVD1	O	Battery voltage detect1
30	D0	I/O	Data0	64	D8	I/O	Data8
31	D1	I/O	Data1	65	D9	I/O	Data9
32	D2	I/O	Data2	66	D10	I/O	Data10
33	WP	O	Write protect	67	CD2#	O	Card detect2
34	GND		Ground	68	GND		Ground

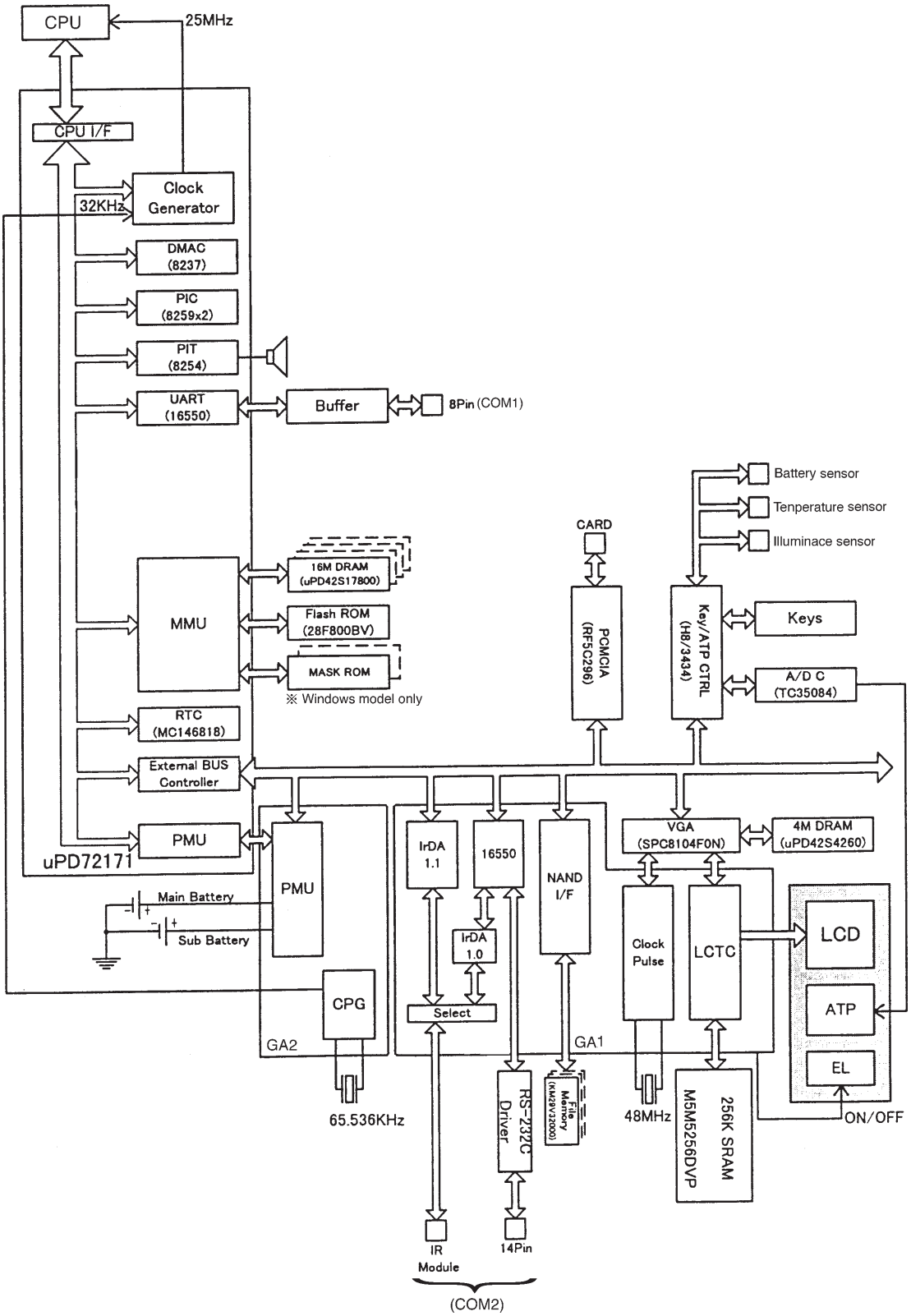
3.3.2 I/O Card Interface

I/O Card Interface signals

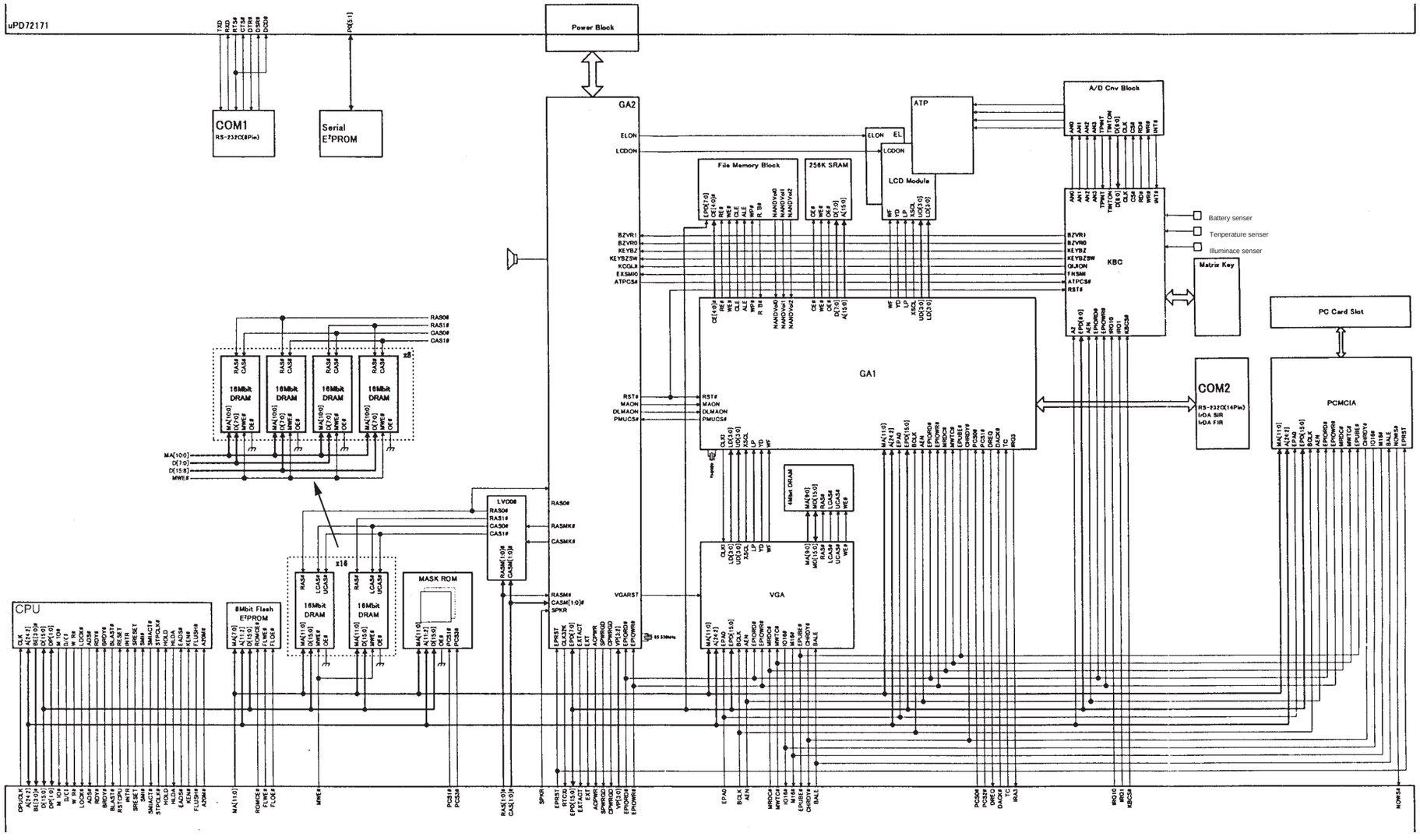
Pin No.	Signal Name	I / O	Description	Pin No.	Signal Name	I / O	Description
1	GND		Ground	35	GND		Ground
2	D3	I/O	Data3	36	CD1#		Card detect1
3	D4	I/O	Data4	37	D11	I/O	Data11
4	D5	I/O	Data5	38	D12	I/O	Data12
5	D6	I/O	Data6	39	D13	I/O	Data13
6	D7	I/O	Data7	40	D14	I/O	Data14
7	CE1#	I	Card enable 1	41	D15	I/O	Data15
8	A10	I	Address10	42	CE2#	I	Card enable2
9	OE#	I	Output enable	43	VS1#	O	5 V Detect
10	A11	I	Address11	44	IORD#	I	I/O Read
11	A9	I	Address9	45	IOWR#	I	I/O Write
12	A8	I	Address8	46	A17	I	Address17
13	A13	I	Address13	47	A18	I	Address18
14	A14	I	Address14	48	A19	I	Address19
15	WE#/PGM	I	Write enable	49	A20	I	Address20
16	IRE0#	O	Interrupt request	50	A21	I	Address21
17	Vcc		Power	51	Vcc		Power
18	Vpp1		Programming and periferal power1	52	Vpp2		Programming and pelipheral power2
19	A16	I	Address16	53	A22	I	Address22
20	A15	I	Address15	54	A23	I	Address23
21	A12	I	Address12	55	A24	I	Address24
22	A7	I	Address7	56	A25	I	Address25
23	A6	I	Address6	57	RFU		Reserve
24	A5	I	Address5	58	RESET	I	Reset
25	A4	I	Address4	59	WAIT#	O	Wait
26	A3	I	Address3	60	INPACK#	O	Inputaknolage
27	A2	I	Address2	61	REG#	I	Atribute memory select
28	A1	I	Address1	62	SPKR#	O	Degital Sound signal
29	A0	I	Address0	63	STSCHG#	O	Card status change
30	D0	I/O	Data0	64	D8	I/O	Data8
31	D1	I/O	Data1	65	D9	I/O	Data9
32	D2	I/O	Data2	66	D10	I/O	Data10
33	IOIS16#	O	16bit I/O port	67	CD2#	O	Card detect2
34	GND		Ground	68	GND		Ground

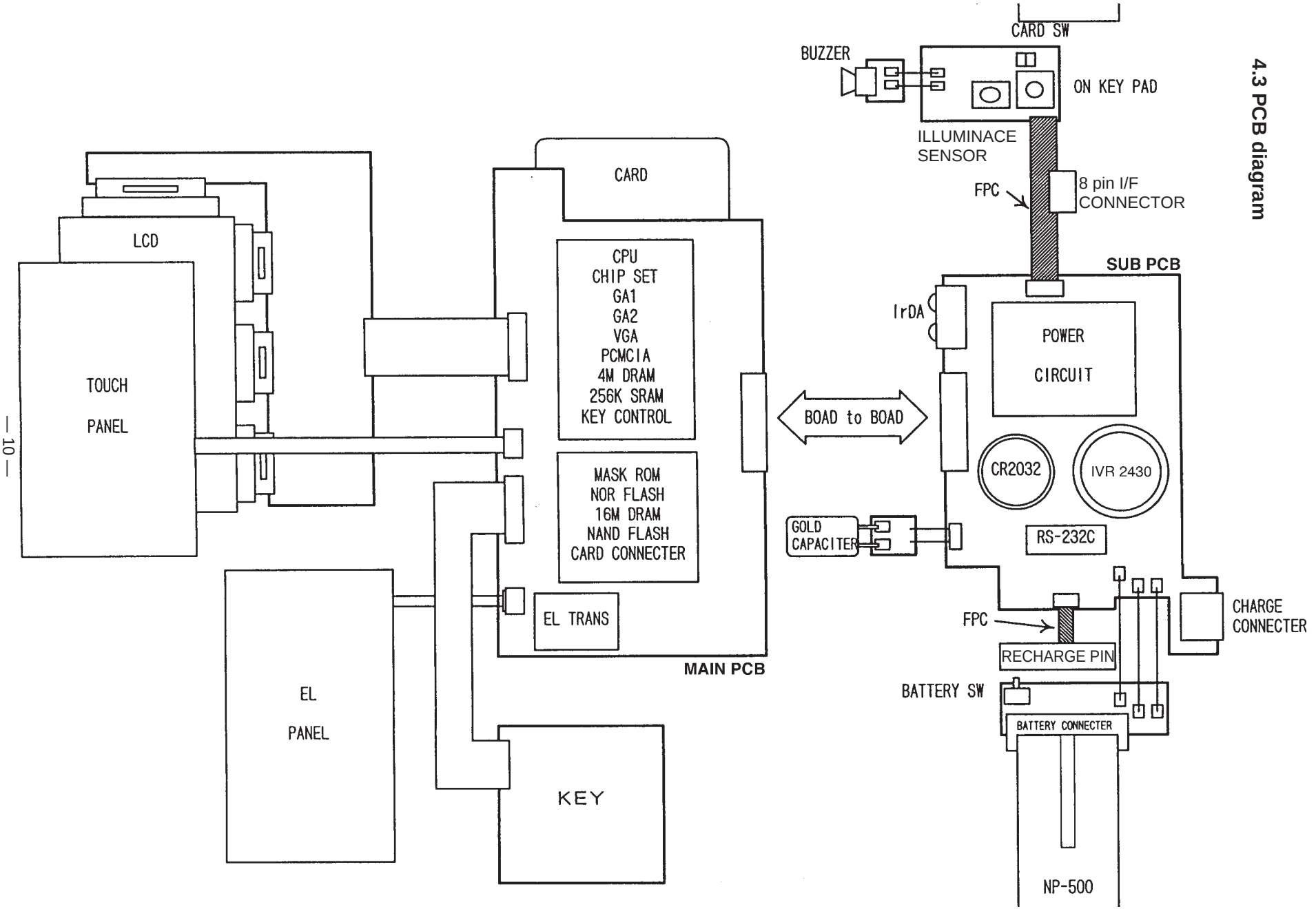
4. SYSTEM DIAGRAM

4.1 System diagram

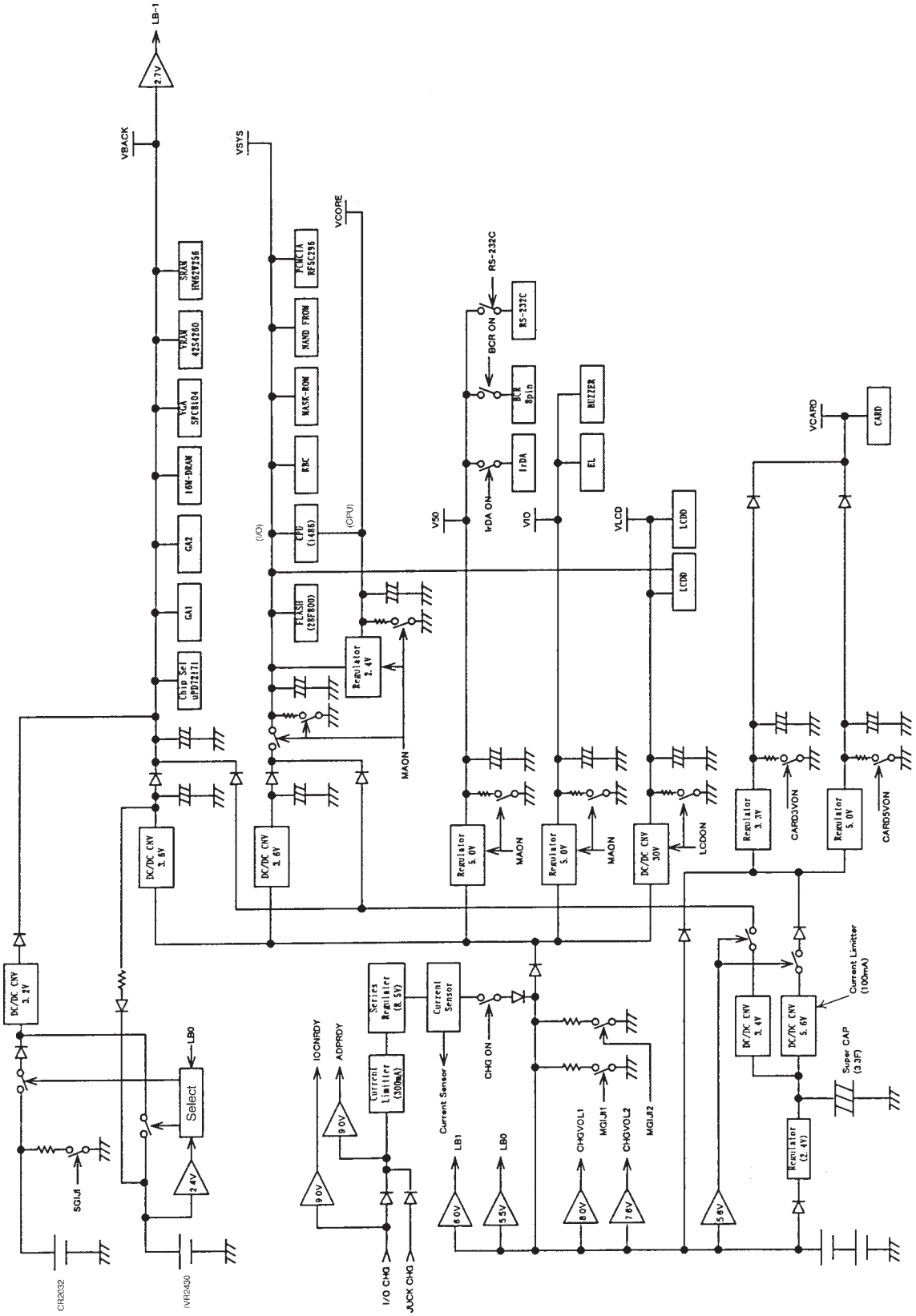


4.2 Block diagram




CARD SW
BUZZER
ON KEY PAD
ILLUMINACE SENSOR
FPC
8 pin I/F CONNECTOR
SUB PCB
IrDA
POWER CIRCUIT
CARD
LCD
CPU
CHIP SET
GA1
GA2
VGA
PCMCIA
4M DRAM
256K SRAM
KEY CONTROL
BOAD to BOAD
TOUCH PANEL
CR2032
IVR 2430
MASK ROM
NOR FLASH
16M DRAM
NAND FLASH
CARD CONNECTER
GOLD CAPACITER
RS-232C
EL TRANS
FPC
CHARGE CONNECTER
RECHARGE PIN
MAIN PCB
BATTERY SW
BATTERY CONNECTER
EL PANEL
KEY
NP-500

4.4 Power supply diagram



5. CIRCUIT DESCRIPTION

5.1 Memory

5.1.1 Memory map

Memory map of IT-2000 W30 model is shown in Figure 5.1.1.

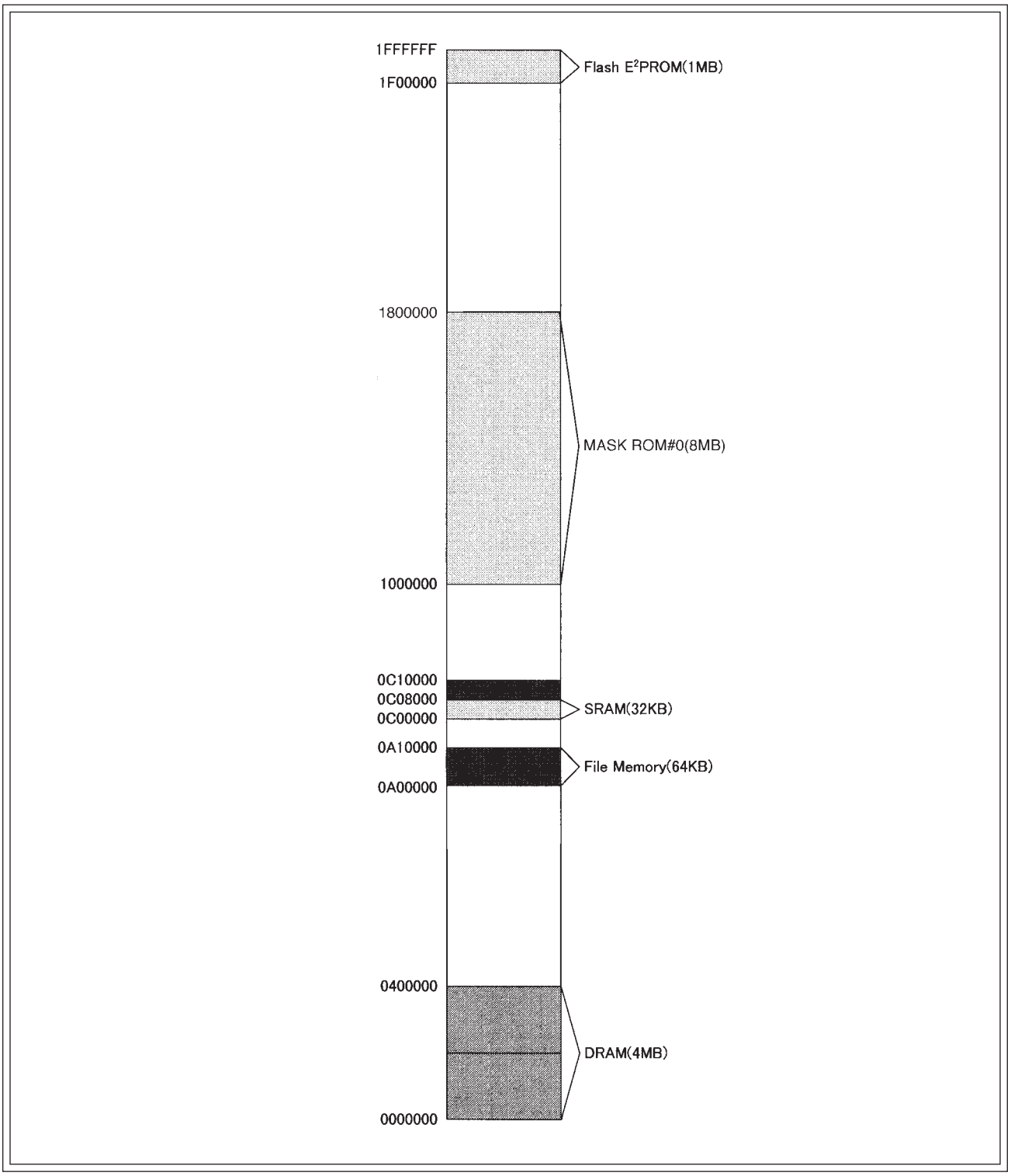


Figure 5.1.1 Memory map

5.1.2 Memory block diagram

Memory block diagram is shown in Figure 5.1.2.

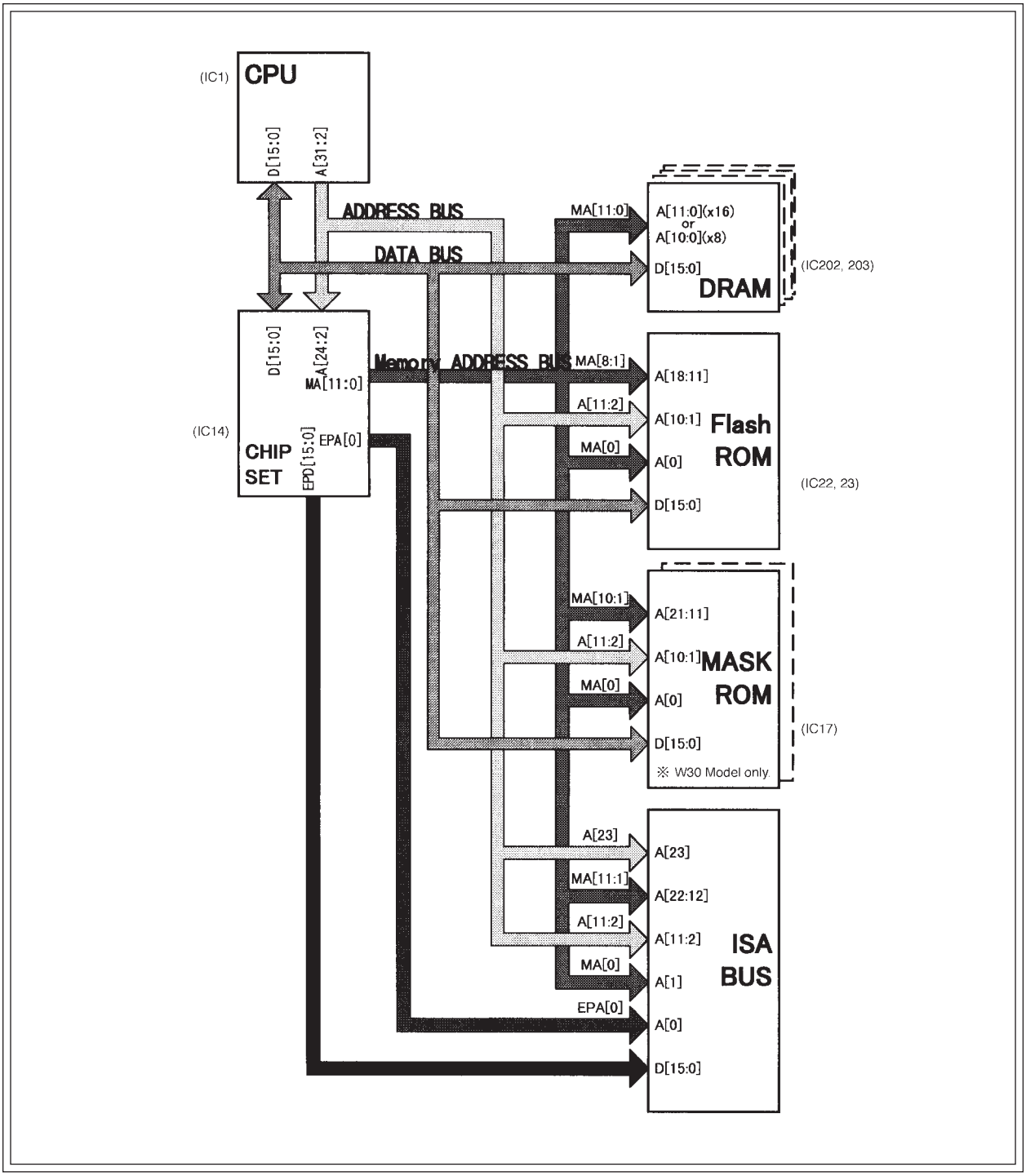


Figure 5.1.2 Memory block diagram

5.1.3 Serial E²PROM

Password and configurations data of the machine are saved in serial E²PROM.
E²PROM diagram is shown in Figure 5.1.3.

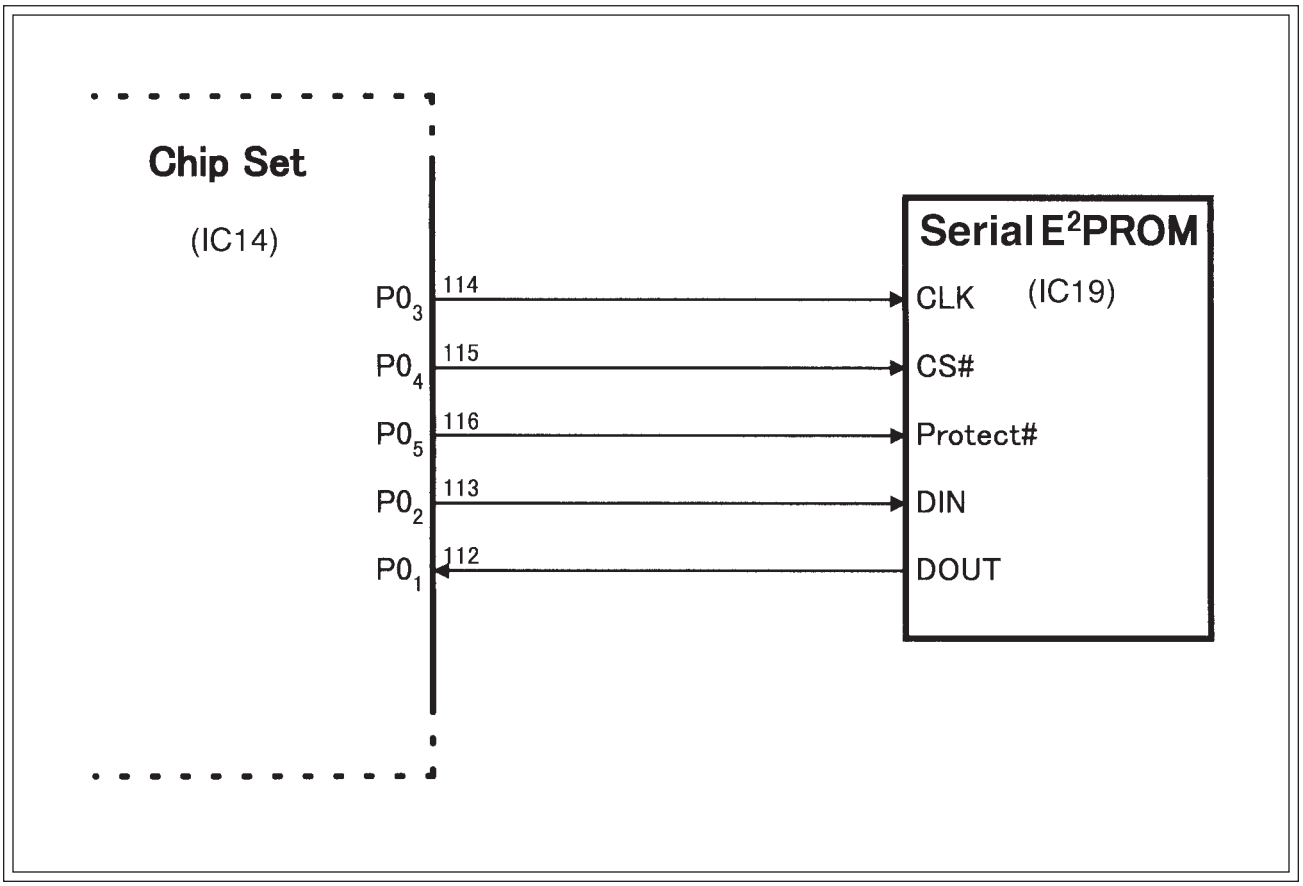


Figure 5.1.3 Serial E²PROM

5.2 KBC

5.2.1 KBC block diagram

Input of matrix key and touch panel, LCD contrast, automatic backlight ON/OFF, VBAT monitoring, and buzzer are controlled at KBC.
KBC diagram is shown in Figure 5.2.1.

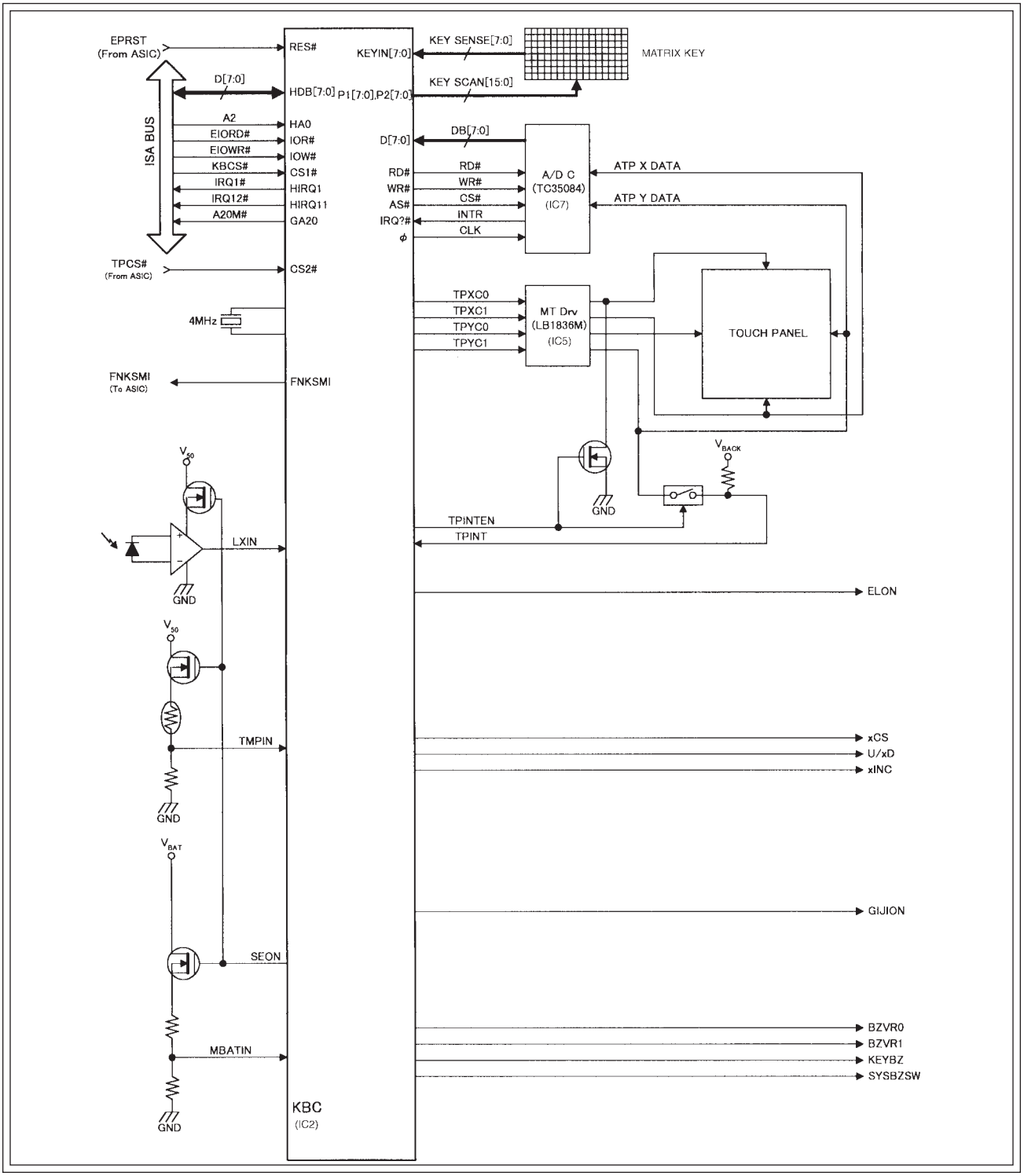


Figure 5.2.1 KBC block diagram

5.2.2 Matrix key

5.2.2.1 Matrix key diagram

Matrix key diagram is shown in Figure 5.2.2.1.
KSENS[2:0] is connected to KEYIN#[2:0] of KBC.
KSCAN[4.0] is connected to a general port of KBC.

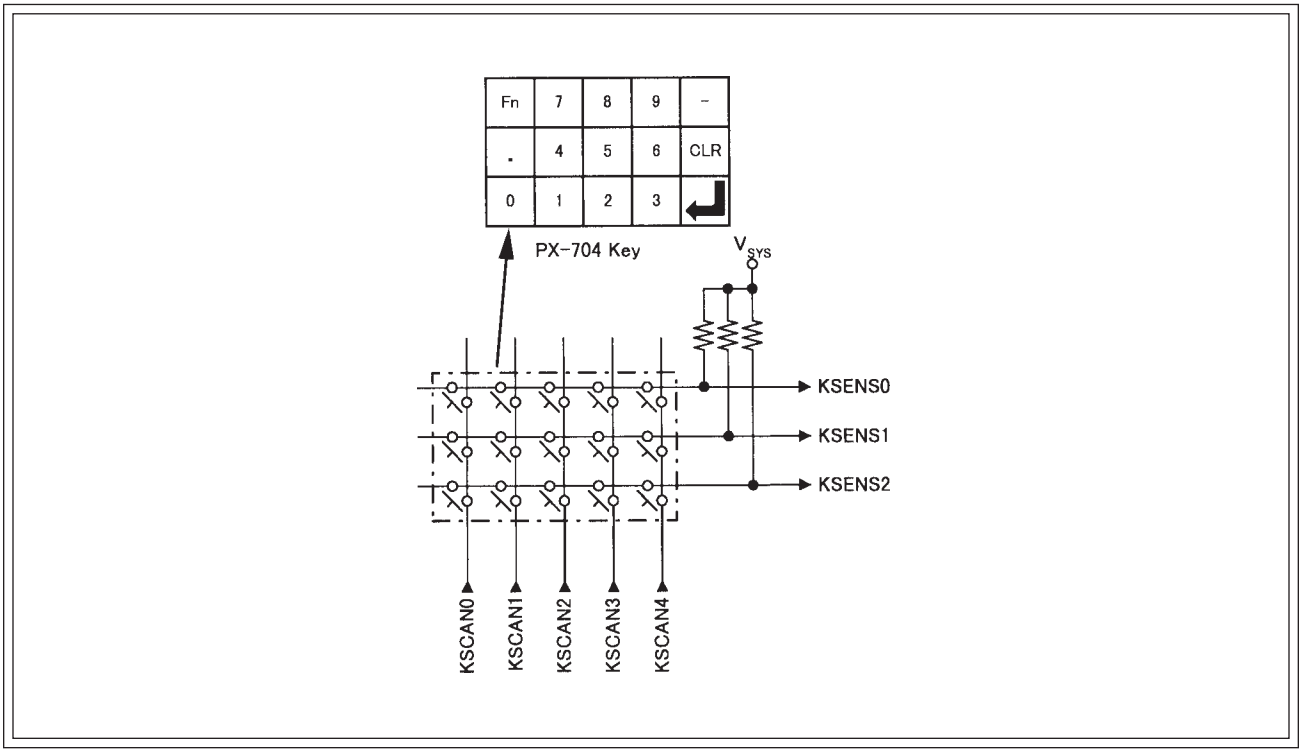


Figure 5.2.2.1 Matrix key diagram

5.2.2.2 Key Sequence

Interrupt is occurred by pressing the key.
When KBC acknowledges the interrupt, it starts to scan and ends after all SCANS are done once.

Key sequence diagram is shown in Figure 5.2.2.2.

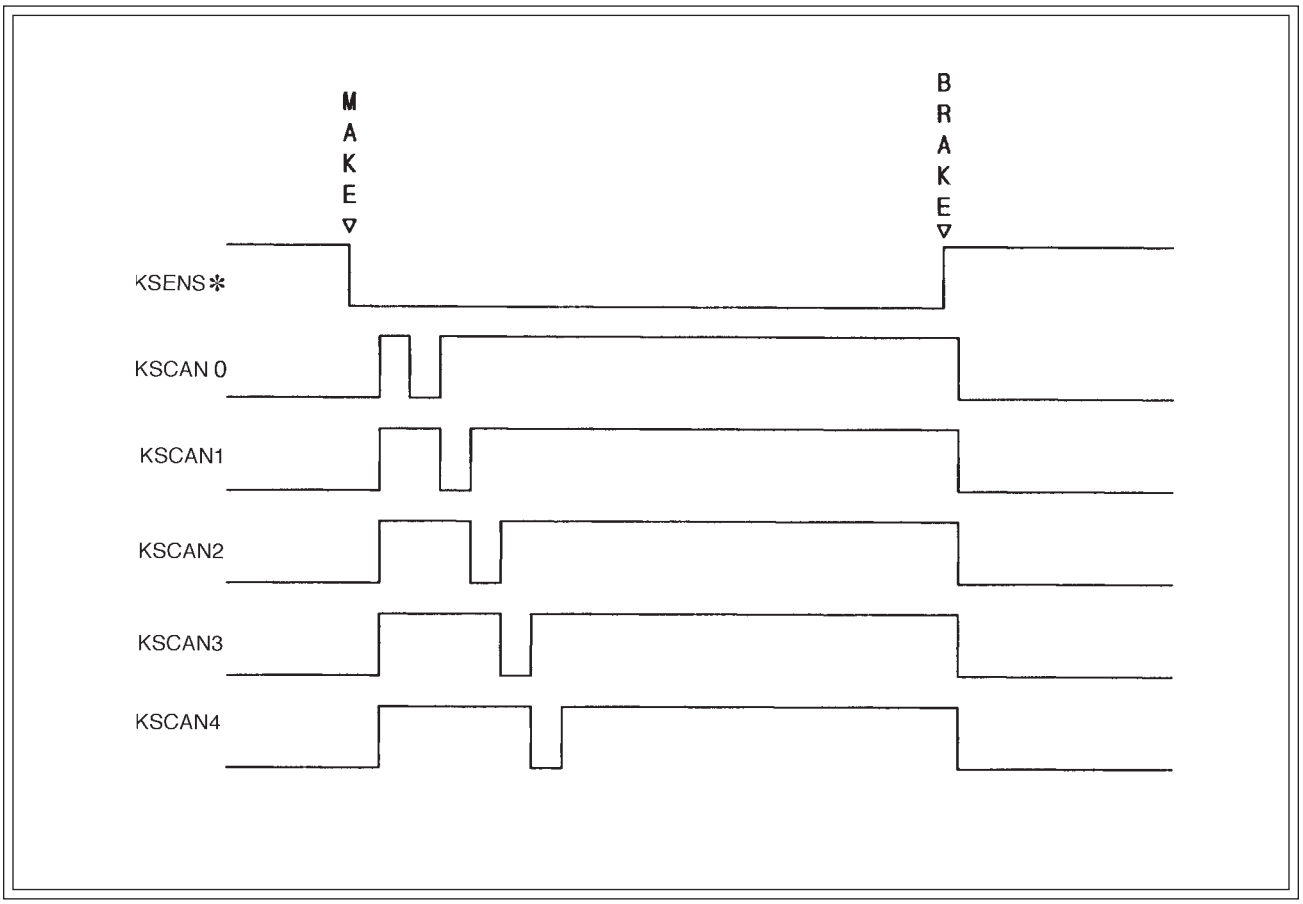


Figure 5.2.2.2 Key Sequence

5.2.3 LCD Contrast control

LCD contrast is controlled by KBC.
Use a function of KBC, A/D converter to measure the temperature with a temperature sensor. Then give the measured data (10 bits AD value) to the system. According to the value system returns the contrast data to KBC.
KBC adjusts LCD contrast by contrast data.

LCD contrast diagram is shown in Figure 5.2.3.1.
LCD contrast adjustment is shown in Figure 5.2.3.2.

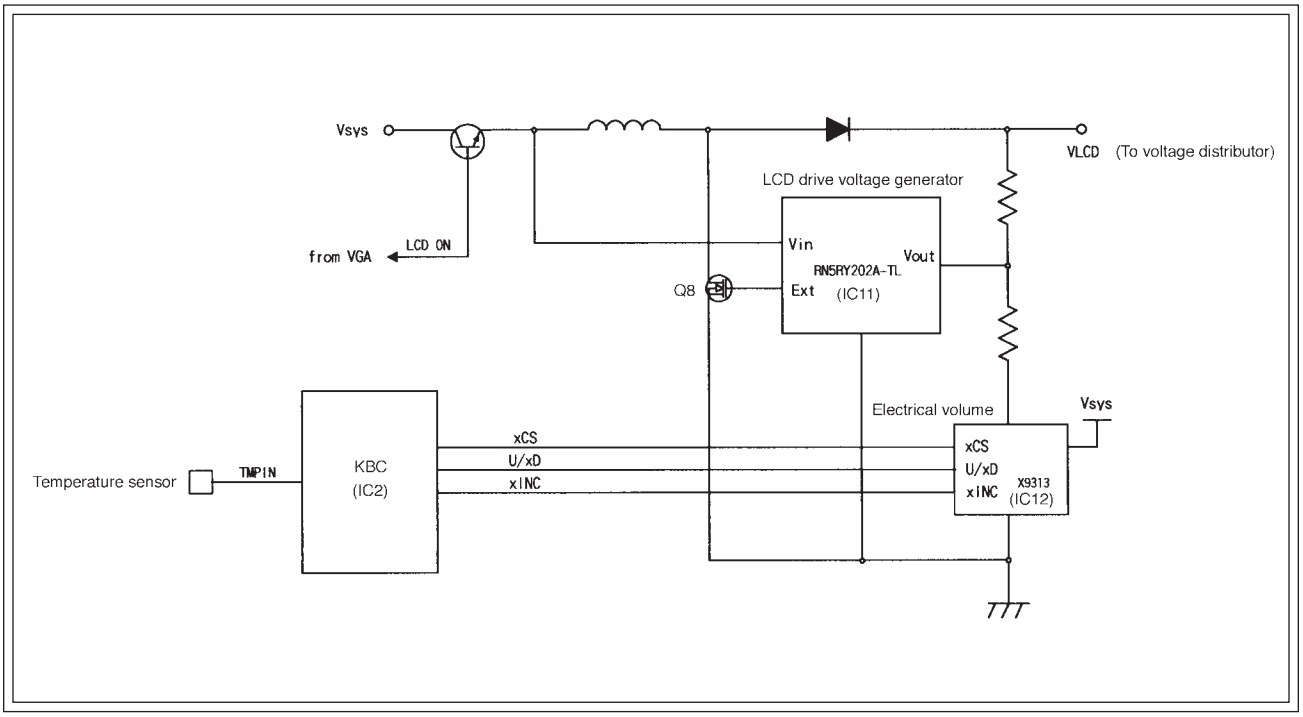


Figure 5.2.3.1 LCD Contrast control diagram

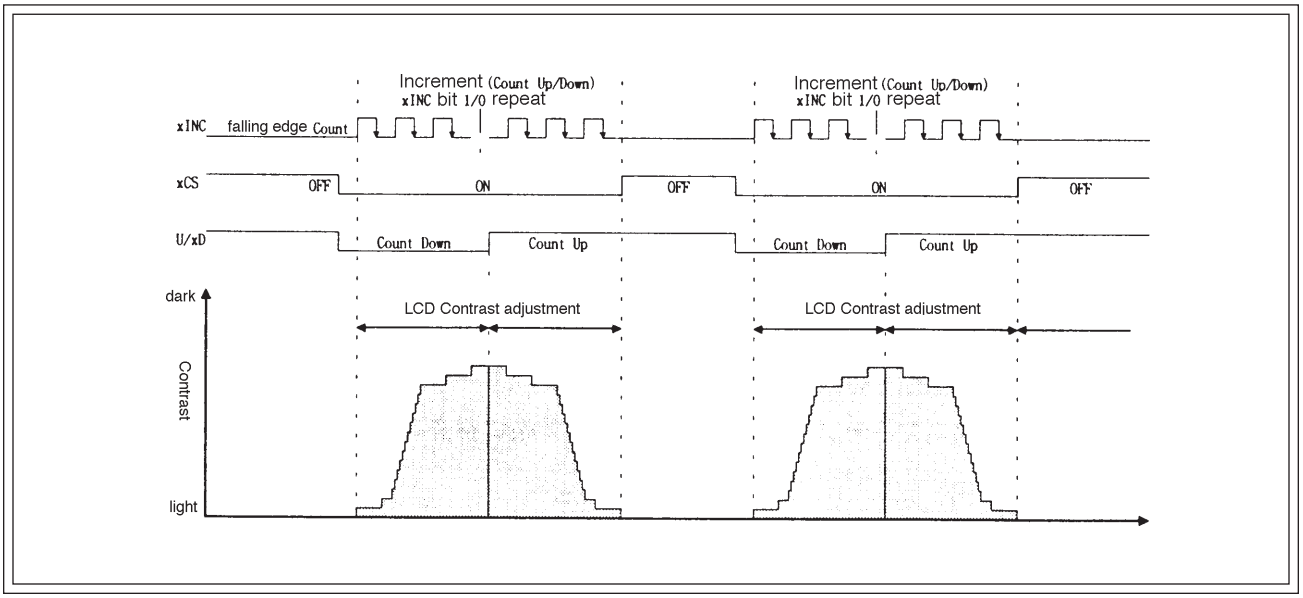


Figure 5.2.3.2 LCD contrast adjustment sequence

5.2.4 Backlight Control

Backlight is controlled by KBC.
Measure the amount of light with the light sensor.
When light amount falls below a certain amount backlight turns on. When light amount exceeds a certain amount backlight turns off.
By having a certain amount of hysteresis it prevents the flickering of the backlight.

Backlight control is shown in Figure 5.2.4.

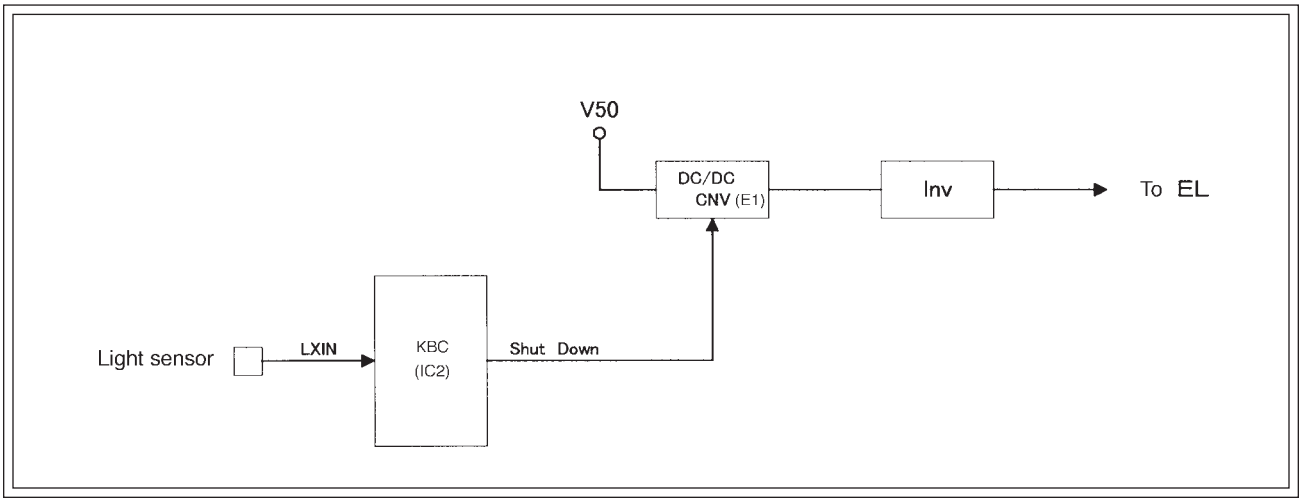


Figure 5.2.4 Backlight Control

5.2.5 Buzzer Control

KBC controls the volume of the buzzer and the sound of a key click.

Buzzer control diagram is shown in Figure 5.2.5.1.
Buzzer control signal is shown in Chart 5.2.5.2.

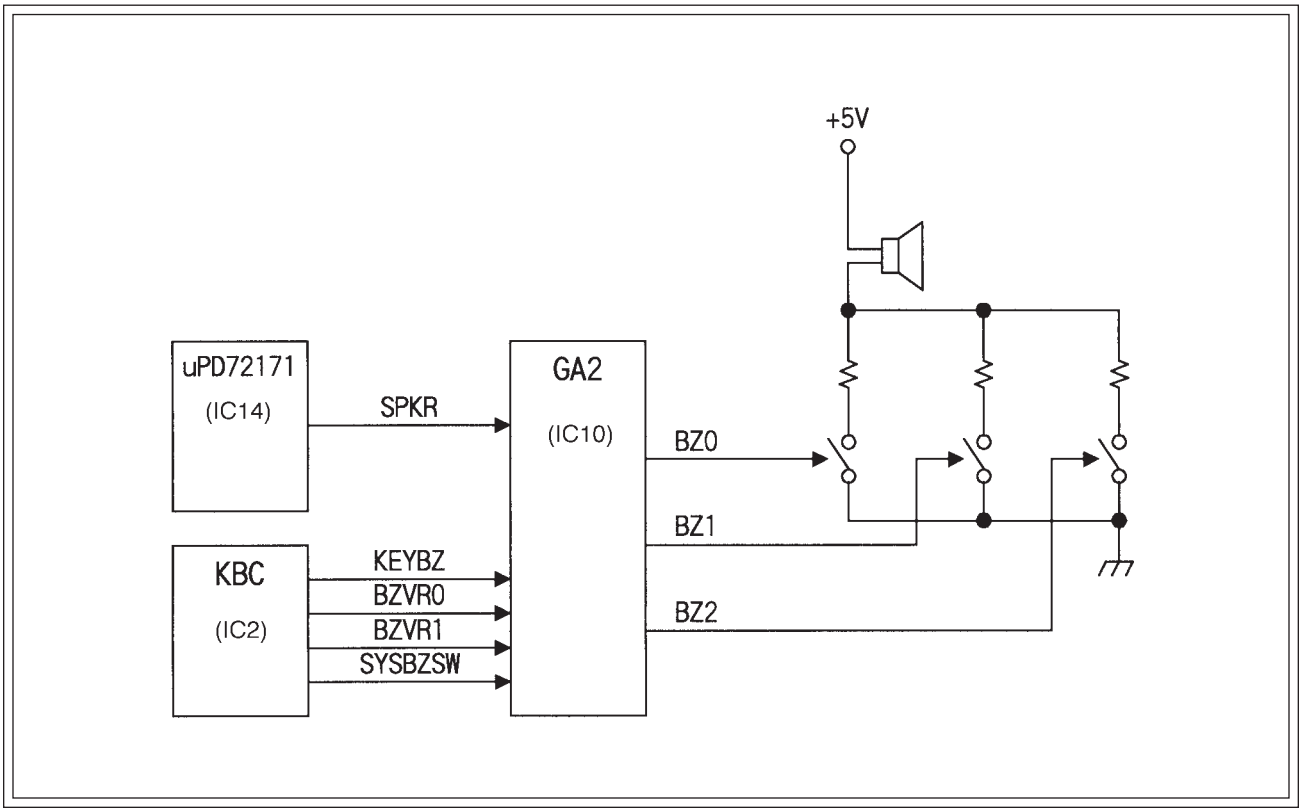


Figure 5.2.5.1 Buzzer Control block diagram

Chart 5.2.5.2 Signals controlling buzzer

Signal	Function
BZVR0	Controls volume of Buzzer
BZVR1	Controls volume of Buzzer
KEYBZ	Controls sound of key click
SYSBZSW	Activates system buzzer
SPKR	Controls sound of system buzzer
BZ[2:0]	Controls volume of Buzzer

BZVR1	BZVR0	Volume
0	0	OFF
0	1	LOW
1	0	Medium
1	1	High

5.3 Communication

Communication block diagram is shown in Figure 5.3.1.

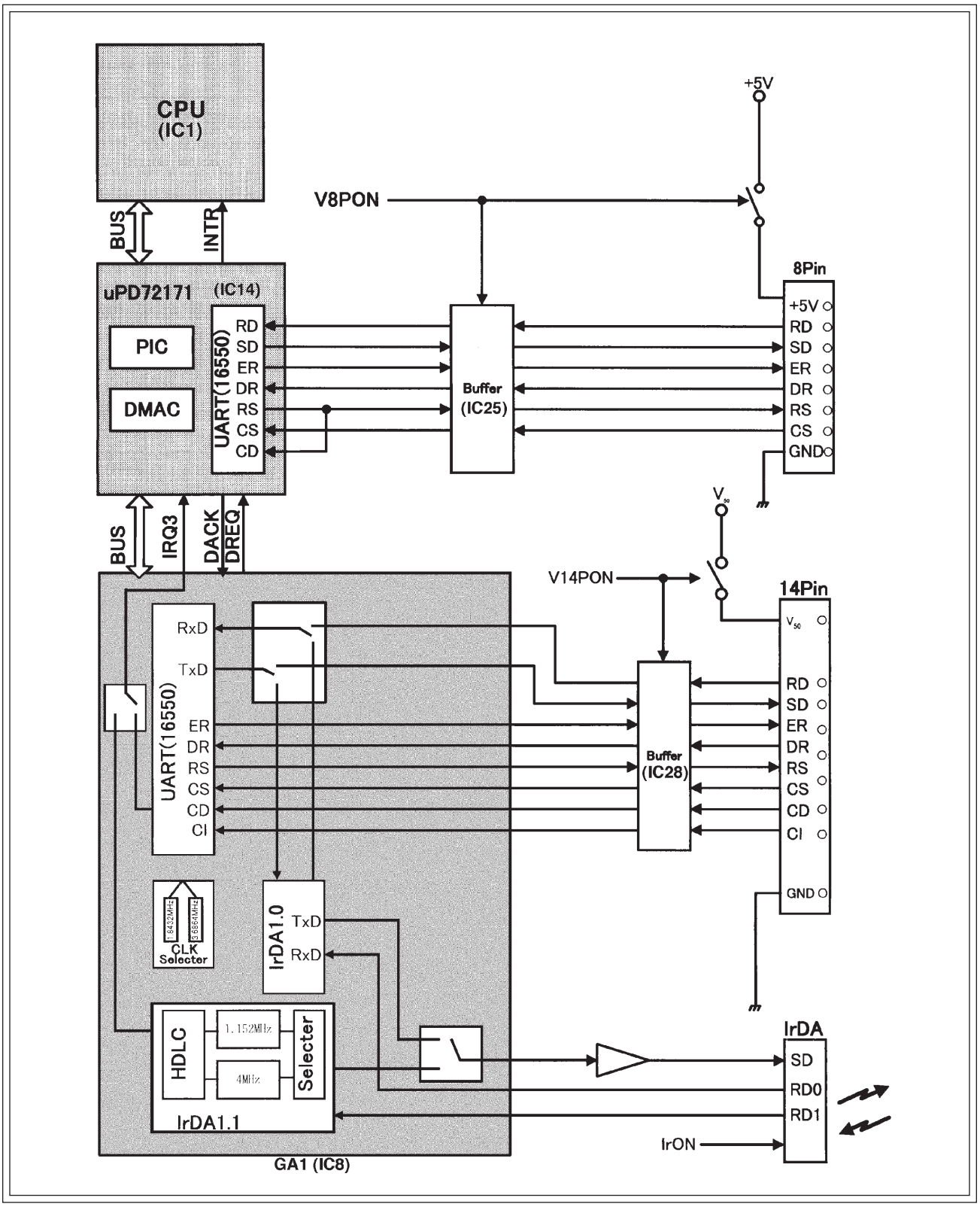


Figure 5.3.1 Communication block diagram

5.4 PC Card

5.4.1 Card power supply circuit

The power supplied to the card is controlled by software.
Card power supply circuit is shown in Figure 5.4.1.
VC5ON, VC3ON, and VCC_SLOT signals control power supply ON/OFF as shown in the diagram.

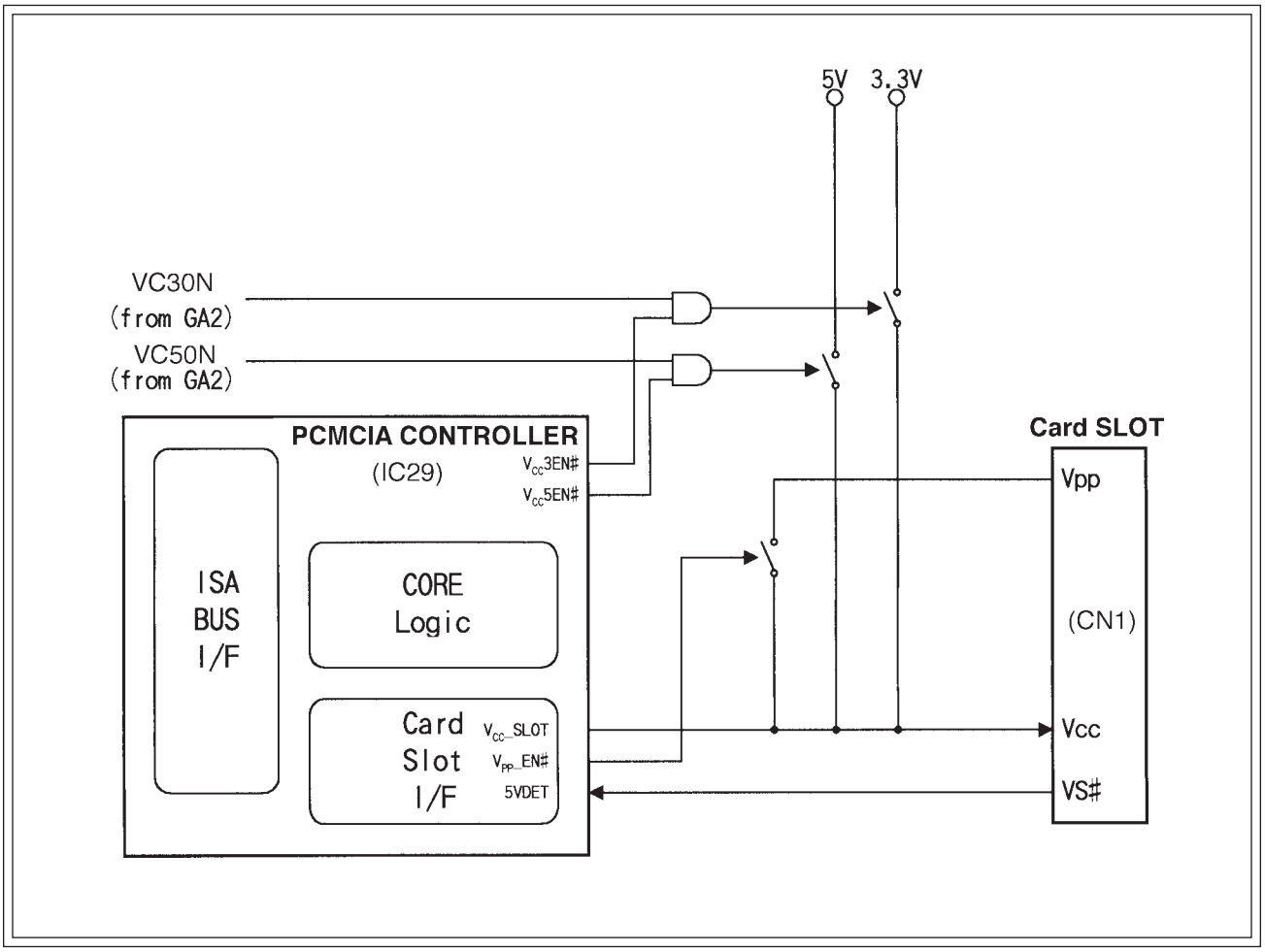


Figure 5.4.1 Card power supply circuit

5.4.2 Card lock SW

Card lock SW diagram is shown in Figure 5.4.2.

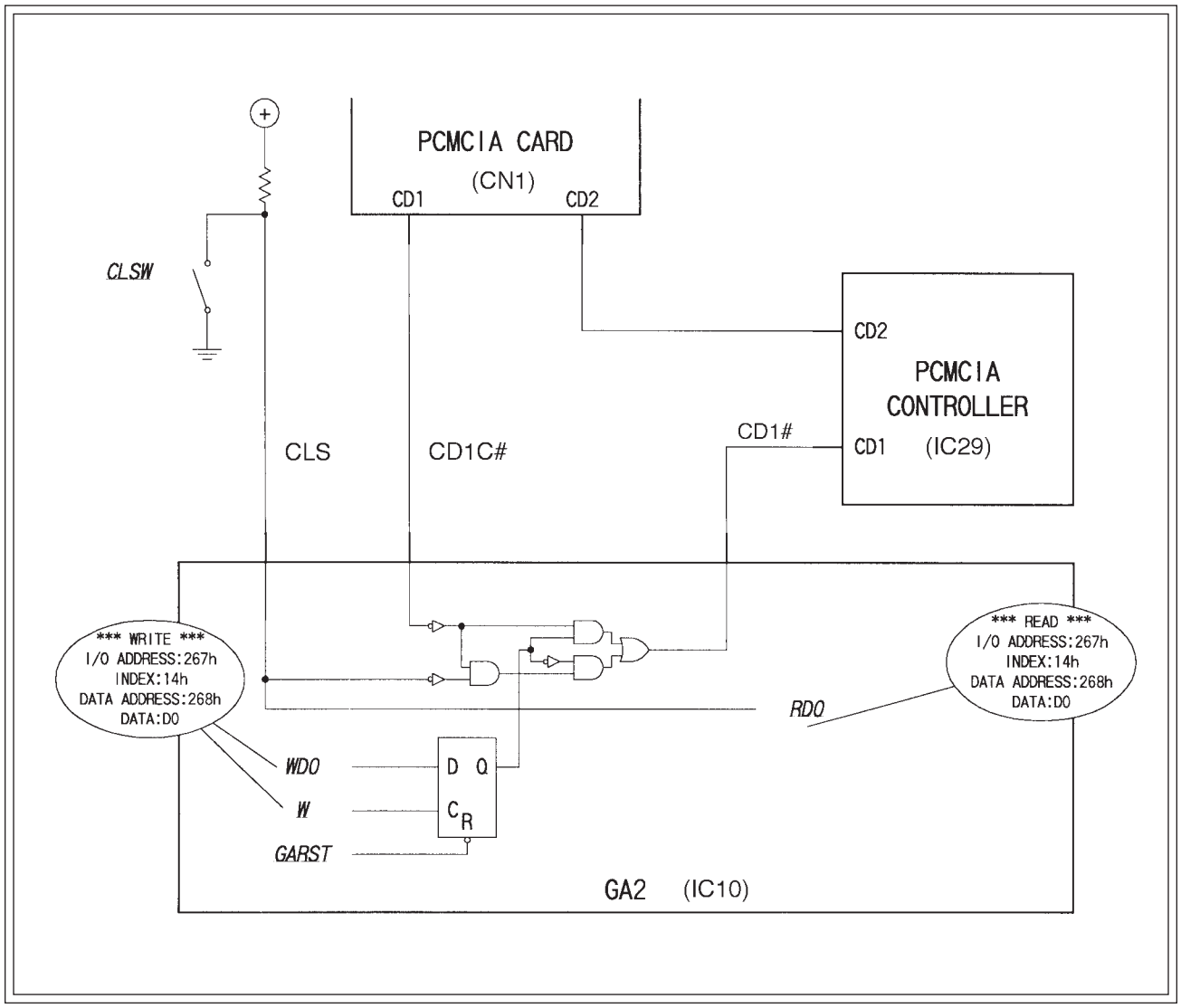


Figure 5.4.2 Card lock SW diagram

5.5 Power Supply

5.5.1 Power specifications

Chart 4-5-1Power specifications

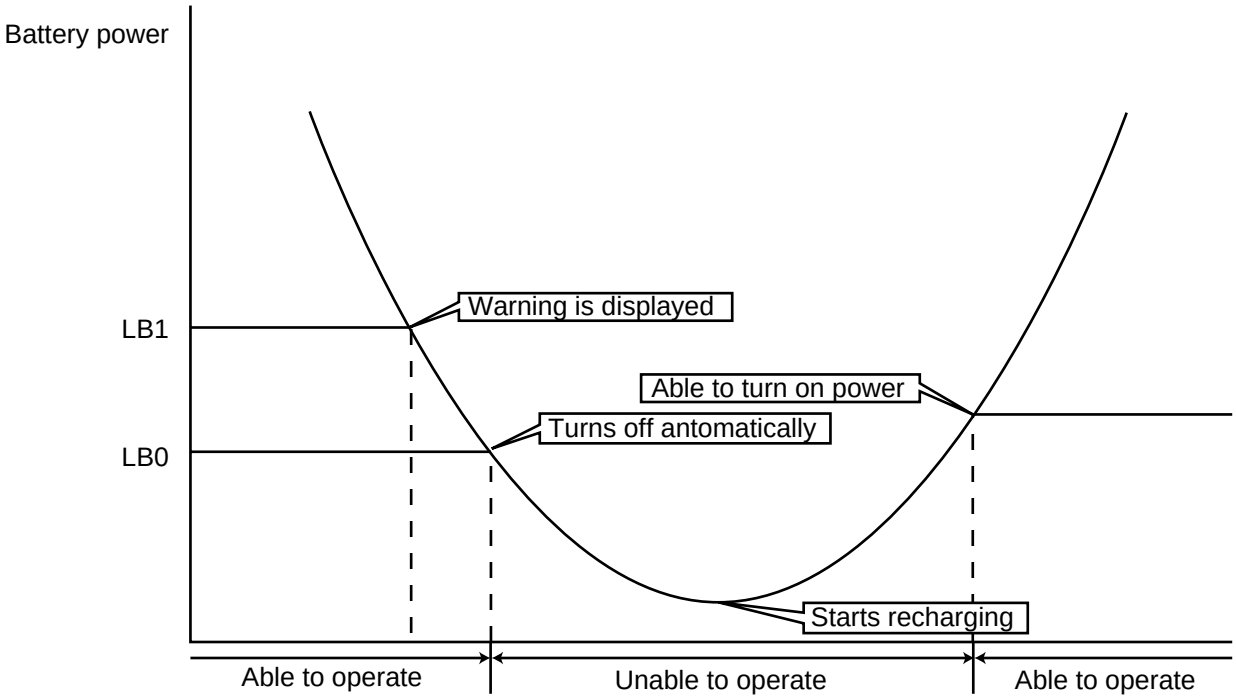
Item	Specification		
	Name	**Voltage**	**Capacity**
Main battery	NP-500	7.2V	1300mA
Backup battery	CR-2032	3.0V	210mA
	IVR-2430	3.0V	30mA
Power Supply block	**Name**	**Voltage**	**Maximum**
	Vback	3.3V	300mA
	Vcore	2.4V	200mA
	Vsys	3.3V	300mA
	V_{IO}	5.0V	1A
	V_{50}	5.0V	500mA
	V_{LCD}	30V	30mA
	VCARD	3.3V	200mA
		5.0V	500mA

Name	Application
Vback	Chip Set, GA1, GA2, Main memory, VGA Controller, Video memory, HW Window memory
Vcore	CPU (core)
Vsys	CPU (I/O), BIOS memory, KBC, MASK-ROM, File memory, PCMCIA controller
V_{IO}	IrDA, 8 pin Serial I/F
V_{50}	EL, Buzzer
V_{LCD}	LCD module
Vcard	CARD

5.5.2 Power transition

This machine is operated by rechargeable lithium battery (main battery) and coin shaped lithium battery (backup battery). When the main battery power gets low, battery replacement warning is displayed. When the main battery becomes more weak that it cannot operate the machine, system turns the power off automatically. Main RAM and RAM disk memory remains due to the backup battery. The relation between main battery power and the machine is shown as below.

The relation between main battery power and the machine.



5.5.3 Low battery power monitoring

Monitor the main battery and backup battery. See below for detail.

Name	Meaning	Detect Voltage	Device
LB1	Low main battery power (warning)	6.0 V	IC20
LB0	Low main battery power (unable to opelate)	5.5 V	IC21
LB2	Low backup battery power (warning)	2.5 V	IC3
LB-1	Low backup power (unable to backup)	2.7 V	IC13

5.5.4 About power supply

The machine's power is supplied only from batteries.
When operating the machine while recharging, the machine does not operate from the AC directly but from the power supplied from the battery that is being recharged.

6. DISASSEMBLY

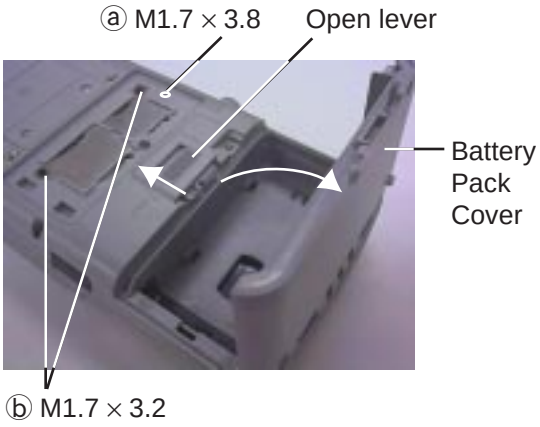
6.1 Removal of the main battery and the backup batteries

① Slide the open lever to open the battery pack cover.

② Remove the main battery.

③ Unscrew (ⓐ M1.7 × 3.8), then remove the backup battery cover.

④ Unscrew two screws (ⓑ M1.7 × 3.2), then remove the backup batteries.



6.2 Removal of the battery pack cover

① Pull the slit in order to remove the battery pack cover.

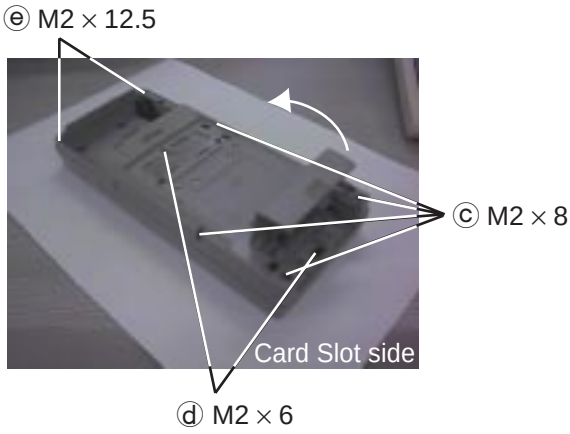
6.3 Removal of the Lower case block

① Unscrew four screws (ⓒ M2 × 8).

② Unscrew two screws (ⓓ M2 × 6).

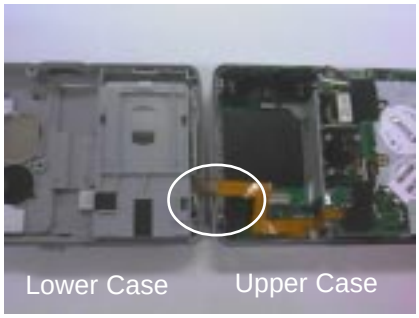
③ Unscrew two screws (ⓔ M2 × 12.5).

④ Open the lower case by lifting the Card Slot side.



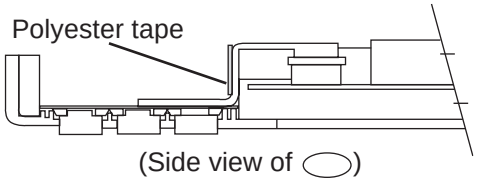
PRECAUTION

* Since the Upper case block and the Lower case block are connected by FPC Cable do not pull forcibly.



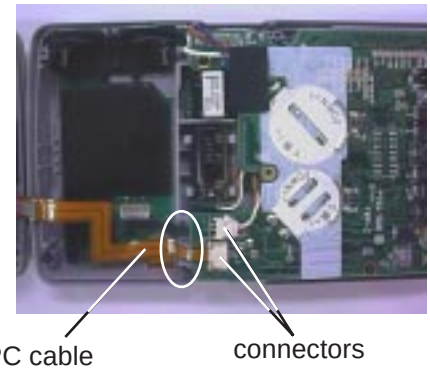
⑤ Disconnect two cables from the connectors.

⑥ Remove the polyester tape.



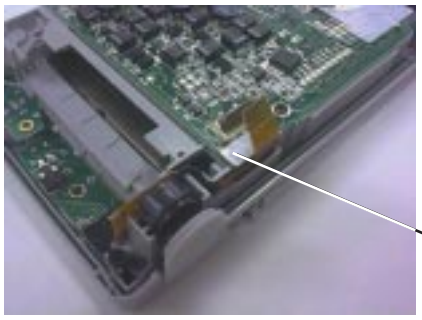
⑦ Remove the FPC cables by removing the Adhisive Tape.

Separate the Upper Case Block and the Lower Case Block.



6.4 Removal of SUB ass'y PCB

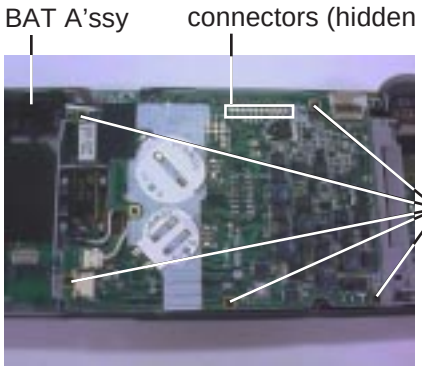
① Remove the connector.



② Unscrew five screws (ⓕ M2 × 4).

③ Separate the BAT ass'y from the middle case ass'y.

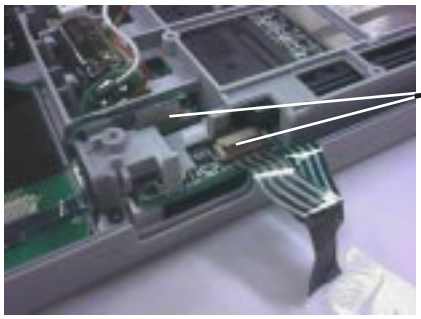
④ Remove the connectors those are hidden below then remove the SUB ass'y.



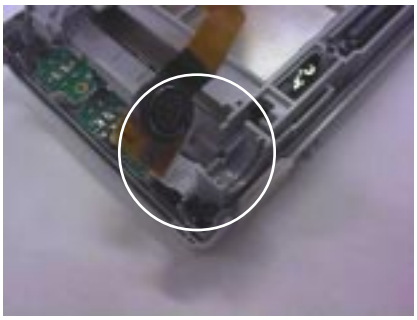
6.5 Disassembly of the Middle Case Block

6.5.1 Removal of the Middle Case ass'y

① Disconnect two cables from the connectors.

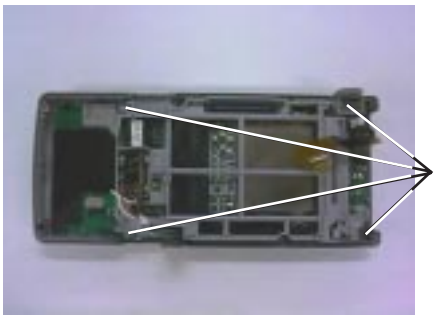


② Separate the 8 pin serial interface connector from the Middle Case ass'y.



③ Unscrew four screws (ⓖ M2 × 10).

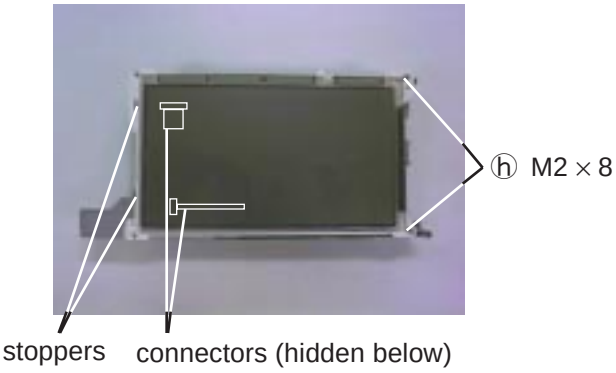
④ Separate the Middle Case ass'y from the Upper Case.



6.5.2 Removal of the LCD ass'y

① Unscrew two screws (ⓗ M2 × 8).

② Release two stoppers then lift the LCD ass'y.



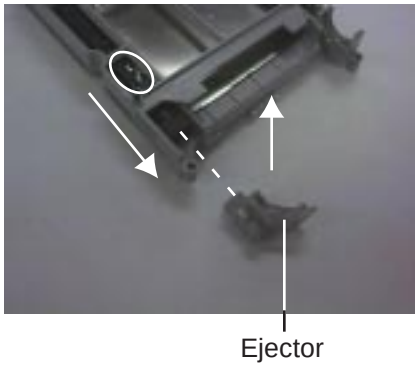
③ Disconnect two cables from the connectors.

④ Separate the LED ass'y from the Middle Case ass'y.

6.5.3 Removal of the MAIN ass'y PCB

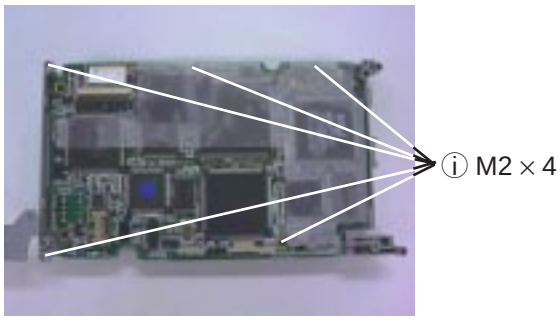
① Pull out ejector lever.

② Hold and remove the Ejector by pulling upward.



③ Unscrew five screws (ⓘ M2 × 4).

④ Separate the Main ass'y PCB from the Middle Case.

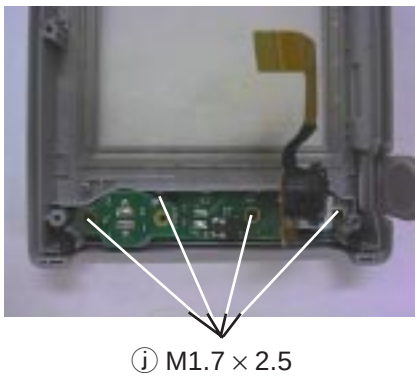


6.6 Disassembly of Upper Case Block

6.6.1 Removal of the BZ ass'y and the LUX ass'y

① Unscrew four screws (ⓙ M1.7 × 2.5).

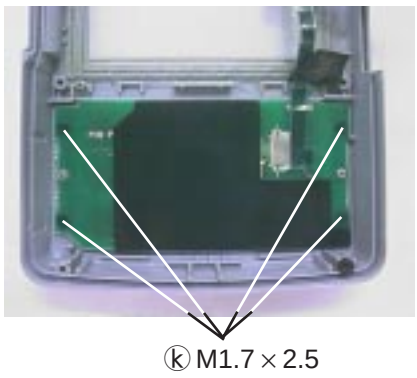
② Separate the BZ ass'y and the LUX ass'y from the Upper Case.



6.6.2 Removal of the Key ass'y

① Unscrew four screws (ⓚ M1.7 × 2.5).

② Separate the Key ass'y from the Upper Case.



7. DIAGNOSTIC PROGRAM

7.1 General

Diagnostic program is made for diagnosing the IT-2000 hardware.
This section shows operating instruction of the diagnostic program with using the Flash ROM card.

7.1.1 Install the diagnostic program to Flash ROM card

① Prepare for Casio Flash ROM card and the diagnostic disk.

② Copy all files in the diagnostic disk to Flash ROM card.
Diagnostic disk files are listed in 7.1.4.

Note: Casio Flash ROM card is recommended. If used the other card it may not work normally.

7.1.2 Boot operation

① Set the Flash ROM card to IT-2000.

② Press the INIT button.

③ Power turn off after the system menu is displayed.

④ Power turn on again.

⑤ Select “1. use HIMEM”.

⑥ Press “1” “1” “9” “ ↵ ”.
Test menu appears on the display.

Note: Select “2. Not use HIMEM” in operating IrDA test. IrDA test is not able to execute when HIMEM is in effect.

7.1.3 Execute the each test

① Select the test number from the menu on the display and press “ ↵ ”.

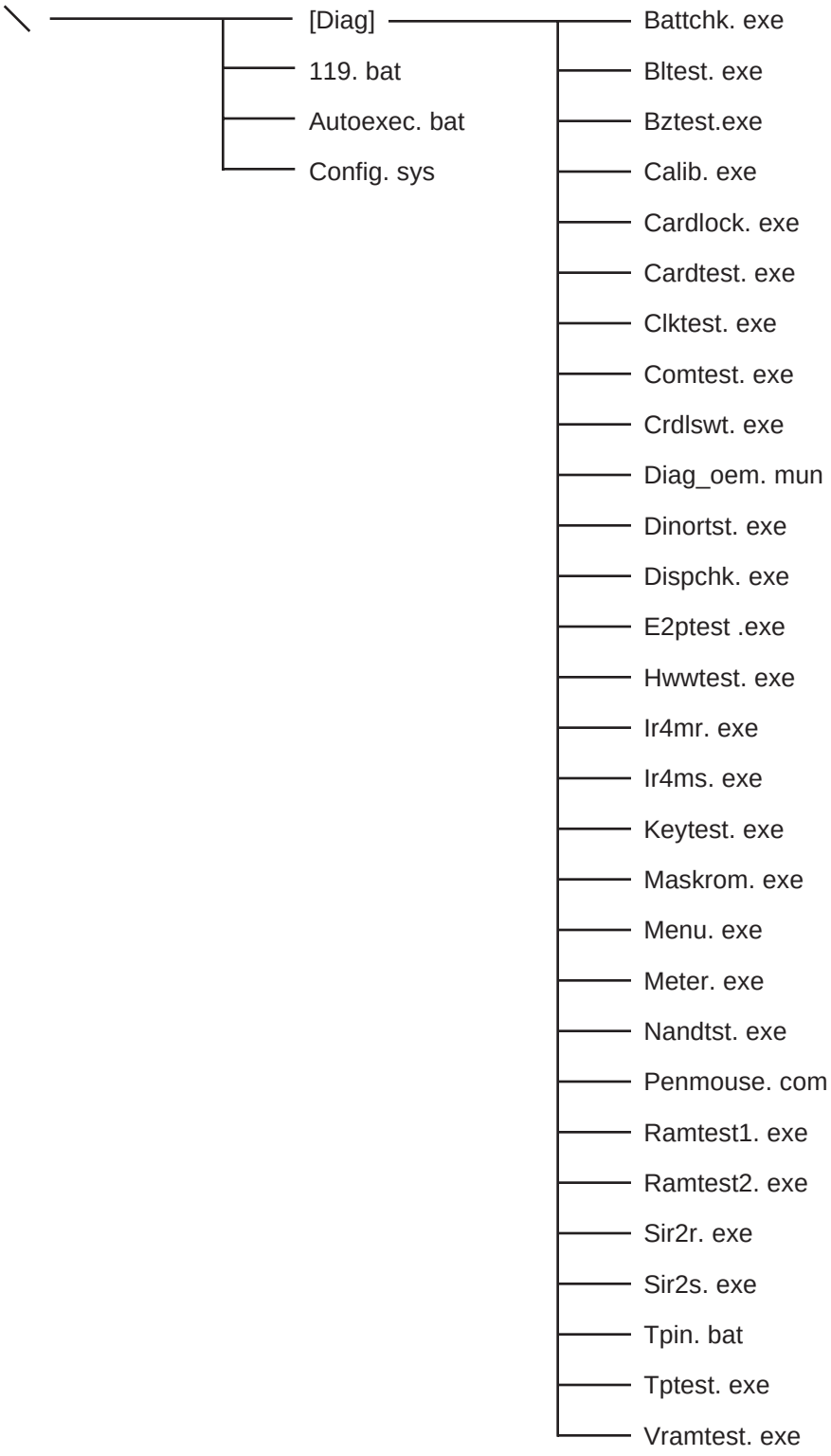
② Each test is executed.
When the test is complete it returns to the menu. Otherwise error message will be displayed.

③ To get out of the error display press “CLR”.

Note: Use the matrix key when selecting a number. Touch panel does not work.

7.1.4 Diagnostic program files

Diagnostic disk files are listed bellow.



7.2 Inspection Detail

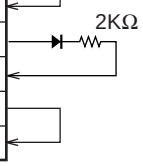
<table>
<tr><th></th><th>Test Menu</th><th>Test Detail</th></tr>
<tr><td>1</td><td>RAM TEST</td><td>Chip Select signal, Address signals, Write/Read test for DRAM</td></tr>
<tr><td>2</td><td>DINOR FLASH</td><td>Chip Select signal, Address signals, Read test for DINOR Flash</td></tr>
<tr><td>3</td><td>NAND FLASH (except D10 Model)</td><td>Chip Select signal, Address signals, Write/Read test for NAND Flash</td></tr>
<tr><td>4</td><td>S-E2 PROM</td><td>Chip Select signal, Address signals, Read test for Serial EEPROM</td></tr>
<tr><td>5</td><td>G-RAM</td><td>Chip Select signal, Address signals, Write/Read/Verify test for G–RAM</td></tr>
<tr><td>6</td><td>HW_WINDOW</td><td>Chip Select signal, Address signals, Write/Read/Verify test for HW Window RAM</td></tr>
<tr><td>7</td><td>MASK ROM (Windows model only)</td><td>Chip Select signal, Address signals, Write/Read/Verify test for MASK RAM</td></tr>
<tr><td>8</td><td>LCD TEST</td><td>LCD Display test</td></tr>
<tr><td>9</td><td>8 pin Loop
* Need 8 pin loop back connecter</td><td>RS→CS test
ER→DR test
SD→RD test
Check of 8 pin power supply output</td></tr>
<tr><td>10</td><td>14 pin Loop
*Need 14 pin I/F tester</td><td>①
<table><tr><th>RS</th><th>ER</th><th>CS</th><th>DR</th><th>CD</th><th>CI</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table>② SD→RD test</td></tr>
<tr><td>11</td><td>SIR Send</td><td>Infrared Send test (Communication speed:115 kbps)</td></tr>
<tr><td>12</td><td>SIR Receive</td><td>Infrared Receive test (Communication speed:115 kbps)</td></tr>
<tr><td>13</td><td>FIR Send</td><td>Infrared Send test (Communication speed:4 Mbps)</td></tr>
<tr><td>14</td><td>FIR Receive</td><td>Infrared Receive test (Communication speed:4Mbps)</td></tr>
<tr><td>15</td><td>LB TEST</td><td>Check of detection for I/O box, AC adapter, Main battery cover, Low battery</td></tr>
<tr><td>16</td><td>CALIB</td><td>Touch panel calibration</td></tr>
<tr><td>17</td><td>TP Input</td><td>Touch panel input test</td></tr>
<tr><td>18</td><td>KEY TEST</td><td>Key test</td></tr>
<tr><td>19</td><td>PC CARD</td><td>PCMCIA card test</td></tr>
<tr><td>20</td><td>CARD LOCK SW</td><td>Card lock switch test</td></tr>
<tr><td>21</td><td>CLOCK</td><td>Clock test</td></tr>
<tr><td>22</td><td>BUZZER TEST</td><td>Buzzer test</td></tr>
<tr><td>23</td><td>BL ON</td><td>Back light turn on</td></tr>
<tr><td>24</td><td>BL OFF</td><td>Back light turn off</td></tr>
<tr><td>25</td><td>Batt Meter</td><td>Displays battery level</td></tr>
<tr><td>26</td><td>Temp Meter</td><td>Displays temperature</td></tr>
<tr><td>27</td><td>Bright Meter</td><td>Displays brightness</td></tr>
</table>

7.3 Special tool

Special tools are necessary for 8 pin Loop test and 14 pin Loop test.

7.3.1 8 pin loop back connector

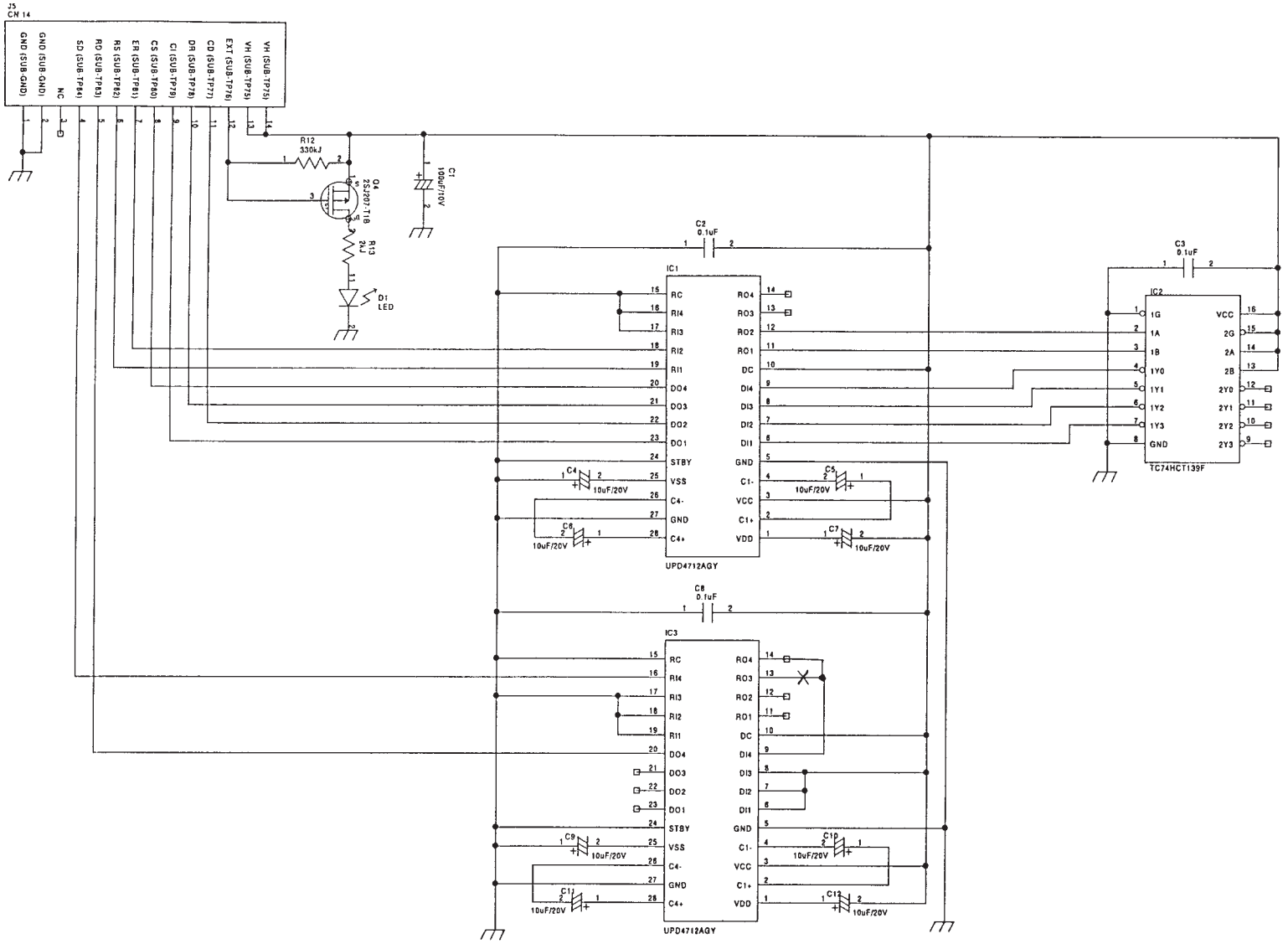
Pin No	Signal name
1	SD
2	RD
3	RS
4	CS
5	VOUT
6	GND
7	ER
8	DR



8 pin loop back connector wiring is shown in the left.

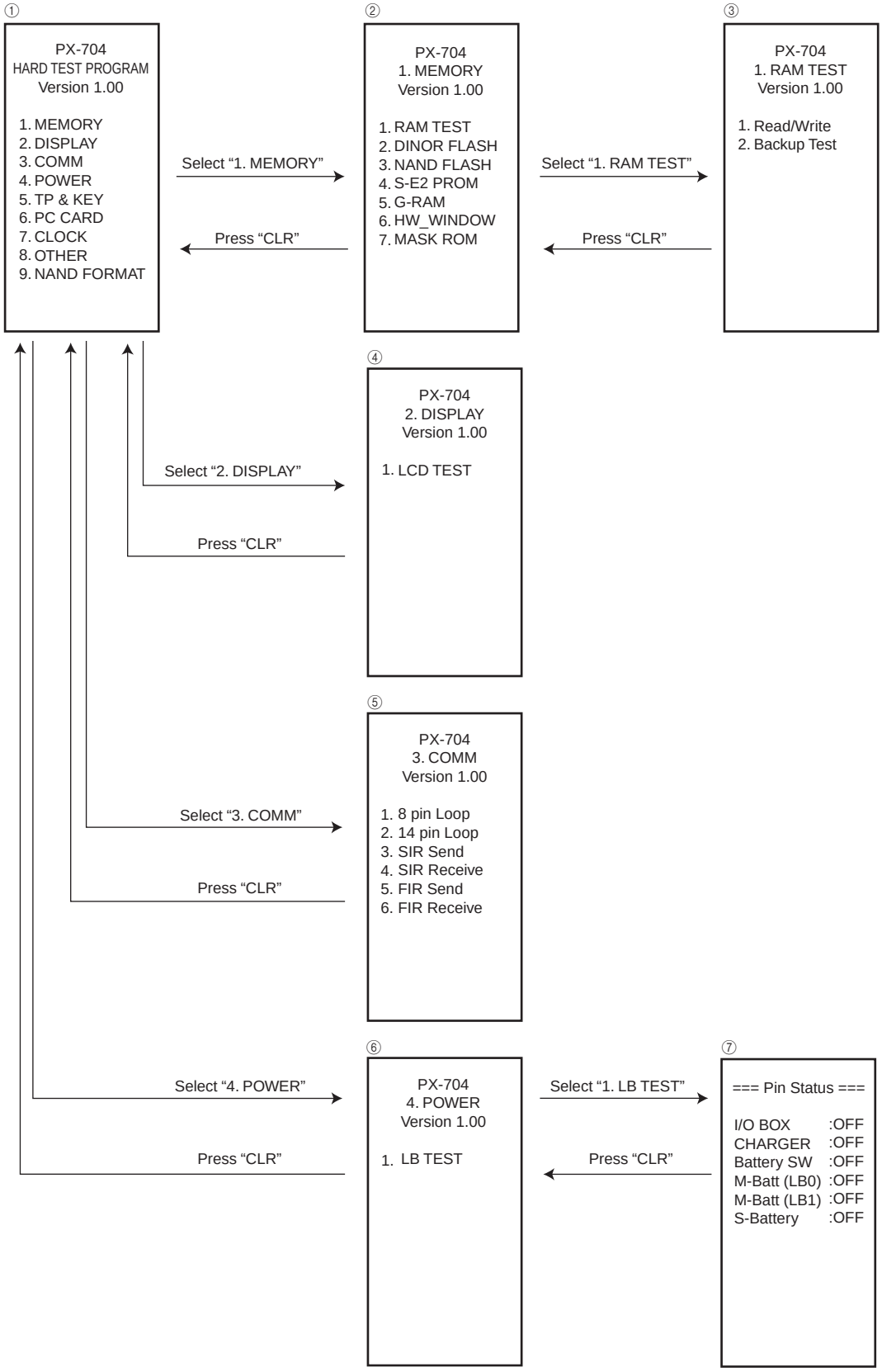
7.3.2 14 pin I/F Tester

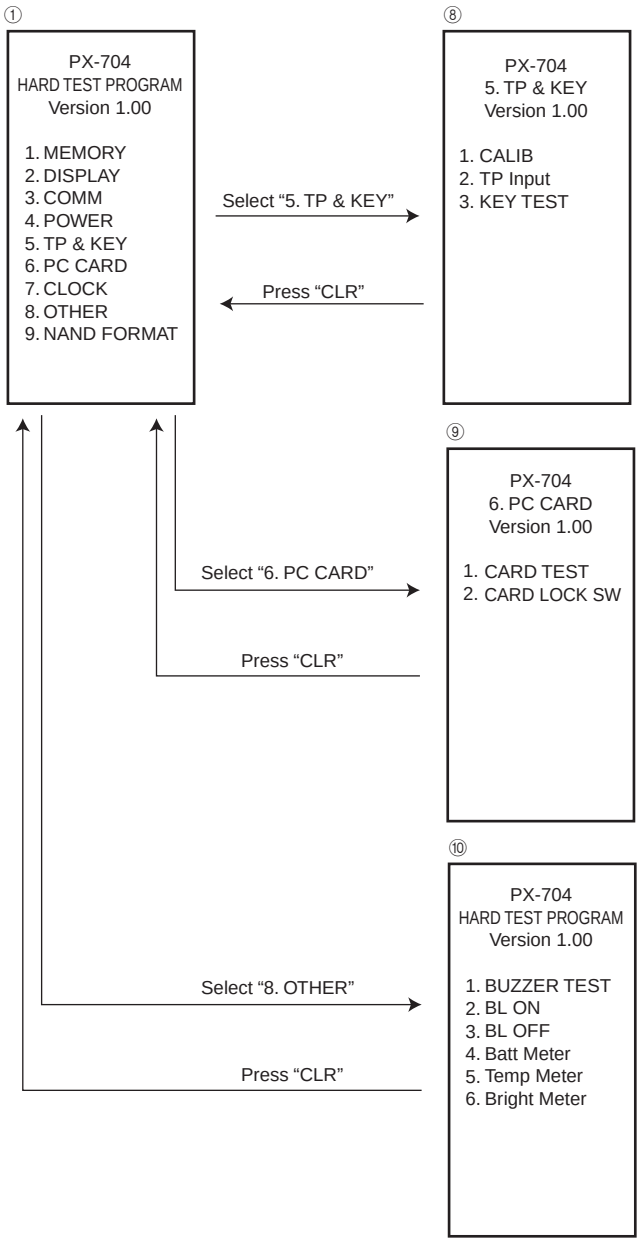
14 pin I/F Tester diagram is shown below.



7.4 Diagnostic test

<Test Menu Display>

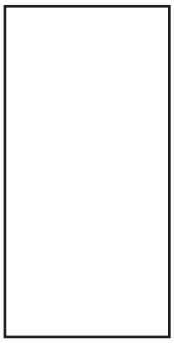
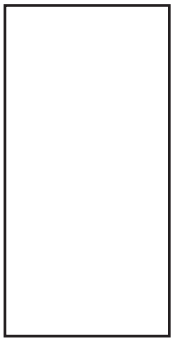


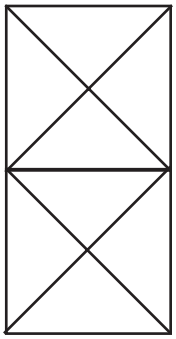
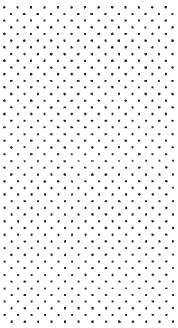
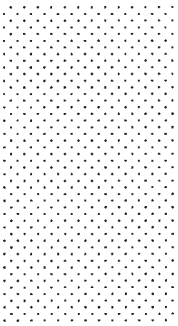
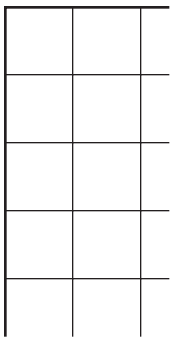

①
PX-704
HARD TEST PROGRAM
Version 1.00
1. MEMORY
2. DISPLAY
3. COMM
4. POWER
5. TP & KEY
6. PC CARD
7. CLOCK
8. OTHER
9. NAND FORMAT
Select “5. TP & KEY”
Press “CLR”
⑧
PX-704
5. TP & KEY
Version 1.00
1. CALIB
2. TP Input
3. KEY TEST
Select “6. PC CARD”
Press “CLR”
⑨
PX-704
6. PC CARD
Version 1.00
1. CARD TEST
2. CARD LOCK SW
Select “8. OTHER”
Press “CLR”
⑩
PX-704
HARD TEST PROGRAM
Version 1.00
1. BUZZER TEST
2. BL ON
3. BL OFF
4. Batt Meter
5. Temp Meter
6. Bright Meter

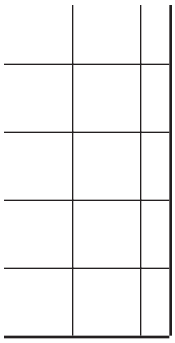
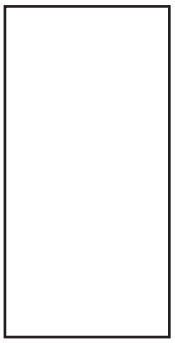
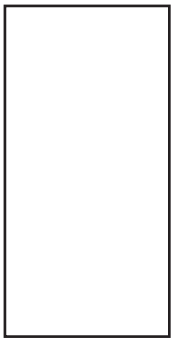
Test menu	Operation	Result	Fault
1. RAM TEST	Display <Menu ③>.	<Menu ③> 1. Read/Write 2. Backup Test	
	Select "1. Read/Write". Screen displays as shown in the right.	RAM Testing... RAM Size = 8192K* RAM TEST --- OK Hit Any Key!! Goes back to Menu ③. *Varies among models.	RAM TEST Error R/W SSSS:AAAA XX YY SSSS :Segment Address AAAA :Offset Address XX :Write Data yy :Read Data Press "↵" to return to Menu ③.
2. DINOR FLASH	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	
	Select "2. DINOR FLASH". Screen displays as shown in the right.	DINOR Testing... DINOR TEST ------ OK Hit Any Key!! Goes back to Menu ②.	I-FROM Error AAAA BBBB AAAA :Correct checksum BBBB :Calculated checksum by Read Data Press "↵" to return to Menu ②.
3. NAND FLASH (D10 Model is not needed.)	Display <Menu ①>.	<Menu ①> 1. MEMORY 2. DISPLAY 3. COMM 4. POWER 5. TP & KEY 6. PC CARD 7. CLOCK 8. OTHER 9. NAND FORMAT	

Test menu	Operation	Result	Fault
	Select “9. NAND FORMAT”. Note: If NAND-FLASH is already formatted this operation is not needed. **Caution: Fomatting deletes all files stored in NAND FLASH.**	TFORMAT Version 3. 3. 3-SP Copyright c M-Systems, Medium physical size is Boot-image size is 0 Kby – reserve unit at XXXXX – reserve unit at XXXXX – reserve unit at XXXXX – reserve unit at XXXXX Finished 12288 Kbytes Format complete. Formatt Hit Any Key!! } It may vary a little ← When this is displayed there is no error.	
	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	
	Select “3. NAND FLASH”. Screen displays as shown in the right.	NAND Testing... NAND Chips – 3. ← NAND Flash value Disk Size —— 11923456. ← DISK capacity NAND Test – OK! Hit Any Key!! Goes back to Menu ②.	
4. S-E2 PROM	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	
	Select “4. S-E2 PROM”. Screen displays as shown in the right.	E2PROM Testing... E2PROM TEST – OK Hit Any Key!! Goes back to Menu ②.	S-E2 PROM Error AAAA BBBB AAAA :Correct checksum BBBB :Calculated Checksum by Read Data Press “↵” to return to Menu ②.

Test menu	Operation	Result	Fault
5. G-RAM	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	
	Select “5. G-RAM”. Screen displays as shown in the right.	Vertical Stripes ⇓ G-RAM TEST OK Hit Any Key!! Goes back to Menu ②.	GRAM Error XXXX:YYYY AA BB XXXX :Segment Address YYYY :Offset Address AA :Write Data BB :Read Data Press “↵” to return to Menu ②.
6. HW_WINDOW	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	
	Select “6. HW-WINDOW”. Screen displays as shown in the right.	HWW RAM Testing... HWW RAM TEST - OK Hit Any Key!! Goes back to Menu ②.	HW–WINDOW Error XXXX:YYYY AA BB XXXX :Segment Address YYYY :Offset Address AA :Write Data BB :Read Data Press “↵” to return to Menu ②.
7. MASK ROM (Windows model only.)	Display <Menu ②>.	<Menu ②> 1. RAM TEST 2. DINOR FLASH 3. NAND FLASH 4. S-E2 PROM 5. G-RAM 6. HW_WINDOW 7. MASK ROM	

Test menu	Operation	Result	Fault
	Select “7. MASK ROM”. Screen displays as shown in the right.	MASK ROM Testing... MASK ROM TEST - OK Hit Any Key!! Goes back to Menu ②.	MASK ROM Error XXXX:YYYY AA BB XXXX :Segment Address YYYY :Offset Address AA :Write Data BB :Read Data Press “↵” to return to Menu ②.
8. LCD TEST	Display <Menu ④>.	<Menu ④> 1. LCD TEST	
	Select “1. LCD TEST”. Screen displays as shown in the right, then checks the LCD.	 No Display	
	Press “↵”.	Black	
	Press “↵”.	 No Display	

Test menu	Operation	Result	Fault
	Press "↵".	 2X patterns lined up vertically.	
	Press "↵".	 Checker	
	Press "↵".	 Reverse checker	
	Press "↵".	 Bars	

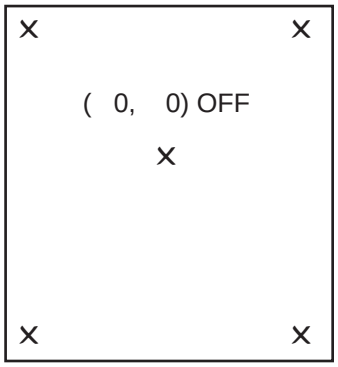
Test menu	Operation	Result	Fault
	Press “↵”.	 Reverse bars	
	Press “↵”.	 No display	
	Press “↵”.	Black	
	Press “↵”.	 No display	

Test menu	Operation	Result	Fault
	Press "↵".	LCD TEST ---OK Hit Any Key!! Goes back to Menu ④.	
9. 8 pin Loop ***Need 8 pin loop back connector.**	Connect 8 pin loop back connector. Display <Menu ⑤>	<Menu ⑤> 1. 8 pin Loop 2. 14pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	
	Select "1. 8pin loop" . Screen displays as shown in the right.	COM1 CONTROL -- OK COM1 DATA - OK Hit Any Key!! Goes back to Menu ⑤.	COM1 LINE – Error Message NG COM1 DATA - NG Error Message Hit Any Key!! Error Message RS ON no Respond : No response for RS signal ER ON no Respond : No response for ER signal Data not come : Data unable to transmit and receive. Data Error : Data unmatch Press "↵" to return to Menu ⑤.
10.14 pin Loop ***Need 14 pin I/F tester.**	Connect the 14 pin I/F tester. Display <Menu ⑤>.	<Menu ⑤> 1. 8 pin Loop 2. 14 pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	

Test menu	Operation	Result	Fault
	Select “2. 14pin loop” . Screen displays as shown in the right.	COM2 CONTROL -- OK COM2 DATA - OK Hit Any Key!! Goes back to Menu ⑤.	COM2 LINE – Error Message NG COM2 DATA - NG Error Message Hit Any Key!! Error Message CI ON no respond : No response for CI signal CD ON no respond : No response for CD signal DR ON no respond : No response for DR signal CS ON no respond : No response for CS signal Data not come : Data unable to tramsmit and receive. Data Error : Communication Data do not match. Press “↵” to return to Menu ⑤.
11. SIR Send	Display <Menu ⑤>. Set the receiving machine to “4. SIR Receive”.	<Menu ⑤> 1. 8 pin Loop 2. 14 pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	
	Select “3. SIR Send”. ✻) Communication Speed :115 kbps	SIR Send Start Executes IrDA transmission. Goes back to Menu ⑤.	SIR Send Start Rcv Time Out Hit Any Key!! The receiving machine may not have executed “4 SIR Receive”.
12.SIR Receive	Display <Menu ⑤>. Select “4. SIR Receive”.	<Menu ⑤> 1. 8 pin Loop 2. 14 pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	

Test menu	Operation	Result	Fault
	Set the transmitting machine to “3. SIR Send” ✻) Communication Speed :115 kbps	SIR Rcv Start IrDA reception is executed. Goes back to Menu ⑤.	SIR Rcv Start Rcv Time Out Hit Any Key!! The transmitting machine may not have executed “3. SIR Send”.
13.FIR Send	Display <Menu ⑤>. Set the receving machine to “6. FIR Receive”.	<Menu ⑤> 1. 8 pin Loop 2. 14pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	
	Select “5. FIR Send”. ✻) Communication Speed :4 Mbps	FIR send Start Executes IrDA transmission. Goes back to Menu Display ⑤.	FIR Send Start Rcv Time Out Hit Any Key!! The receiving machine may not have executed “6. FIR Receive”.
14.FIR Receive	Display <Menu ⑤>. Select “6. FIR Receive”.	<Menu ⑤> 1. 8 pin Loop 2. 14 pin Loop 3. SIR Send 4. SIR Receive 5. FIR Send 6. FIR Receive	
	Set the transmitting machine to “5. FIR Send”. ✻) Communication Speed :4 Mbps	FIR Rcv Start IrDA reception is executed. Goes back to Menu ⑤.	FIR Rcv Start Rcv Time Out Hit Any Key!! The transmitting machine may not have executed “5 FIR Send”.
15.LB TEST	Display <Menu ⑦>.	<Menu Display ⑦> === Pin Status === I/O BOX :OFF CHARGER :OFF Battery SW :OFF M-Batt (LB0) :OFF M-Batt (LB1) :OFF S-Battery :OFF	
	I/O BOX → I/O BOX.	OFF :not set ON :set	
	CHARGER → Connecting Adaptor.	OFF :disconnected ON :connected	

Test menu	Operation	Result	Fault
	Battery SW →Main battery cover open/close.	OFF :cover is closed ON :cover is opened	
	M–Batt →Main battery Low (LB0).	OFF :undetected ON :detected	
	M–Batt →Main battery Low (LB1).	OFF :undetected ON :detected	
	S–Battry →Backup battery (CR2032) Low.	OFF :undetected ON :detected	
	Press CLR key.	Hit Any Key!! Goes back to Menu⑥.	
16.CALIB	Display <Menu⑧>.	<Menu ⑧> PX-704 5. TP&KEY Version 1.00 1. CALIB 2. TP Input 3. KEY TEST	
	Select “1. CALIB”. Touch the cross point by PEN (4 points).	× × ■■ CALIBRATION ■■ Please touch the cross point by PEN correctly 1. EXIT 2. RETRY × ×	
	Select “1. EXIT”.	Goes back to Menu ⑧.	
17.TP Input	Display <Menu ⑧>.	<Menu ⑧> PX-704 5. TP & KEY Version 1.00 1. CALIB 2. TP Input 3. KEY TEST	

Test menu	Operation	Result	Fault
	Select “2. TP Input”. Touch the cross point by PEN (5 points).	 Displays each coordinate figures as you touch them. While touching, “ON” is displayed. After touching all 5 points display goes back to Menu ⑧.	Press CLR key. Goes back to Menu ⑧.
18.KEY TEST	Display <Menu ⑧>.	<Menu ⑧> PX-704 5. TP & KEY Version 1.00 1. CALIB 2. TP Input 3. KEY TEST	
	Select “3. KEY TEST”. Input numerical keys (in any order). Note: Fn key is recognized by pressing 1 after pressing [Fn].	[Fn] [7] [8] [9] [–] [.] [4] [5] [6] [ES] [0] [1] [2] [3] [CR] The numbers pressed will become reversed.	
	Input all keys.	KEY TEST --- OK Hit Any Key!! When all keys are finished inputting display goes back to Menu ⑧.	

Test menu	Operation	Result	Fault
19.PC CARD	Set ATA card. (Formatted) Display <Menu ⑨>.	<Menu ⑨> PX-704 6. PC CARD Version 1.00 1. CARD TEST 2. CARD LOCK SW	
	Select “1. CARD TEST”.	PCMCIA CARD Testing.... CARD Test - OK Hit Any Key!! Goes back to Menu ⑨.	
20. CARD LOCK SW	Set ATA card (formatted), then turn the CARD LOCK SW ON. Display <Menu ⑨>.	<Menu ⑨> PX-704 6. PC CARD Version 1.00 1. CARD TEST 2. CARD LOCK SW	
	Select “2. CARD LOCK SW”.	0=S-LOCK OFF 1=S-LOCK ON CLR=END TEST PCIC:ON, Lock Sw:ON	
	Turn CARD LOCK SW OFF.	0=S-LOCK OFF 1=S-LOCK ON CLR=END TEST PCIC:OFF, Lock Sw:OFF	
	Press “1”.	0=S-LOCK OFF 1=S-LOCK ON CLR=END TEST PCIC:ON, Lock Sw:OFF	
	Press CLR.	Goes back to Menu ⑨.	
21.CLOCK	Display <Menu ①>.	<Menu ①> 1. MEMORY 2. DISPLAY 3. COMM 4. POWER 5. TP&KEY 6. PC CARD 7. CLOCK 8. OTHER 9. NAND FORMAT	

Goes back to Menu ①.

<Menu ⑩>

Three different volume of buzzer sounds.

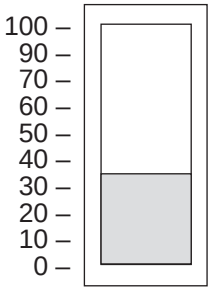
Goes back to Menu ⑩.

<Menu ⑩>

Backlight turns on.

Goes back to Menu ⑩.

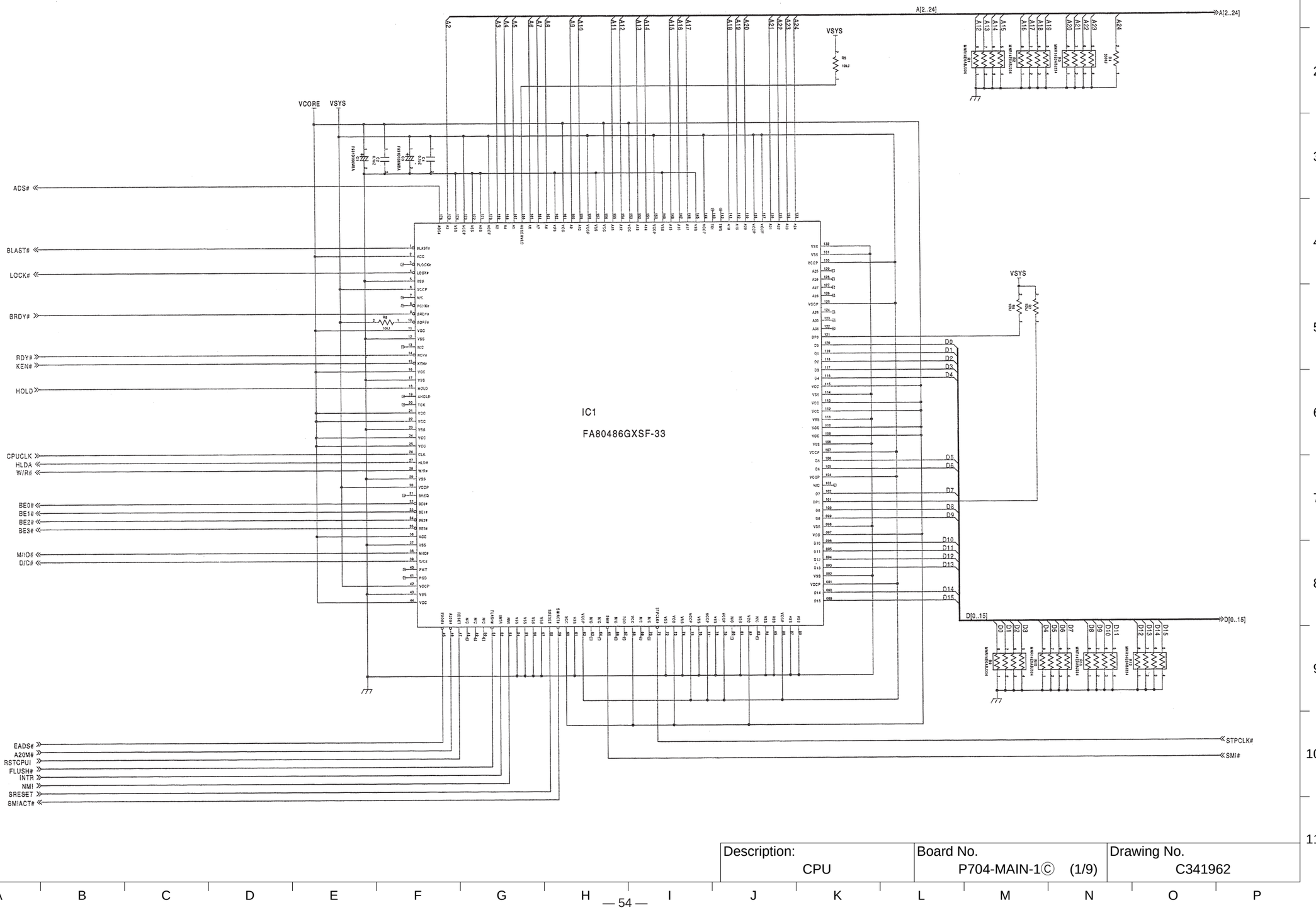
Test menu	Operation	Result	Fault
26.Temp Meter	Display <Menu ⑩>.	<Menu ⑩> PX-704 HARD TEST PROGRAM Version 1.00 1. BUZZER TEST 2. BL ON 3. BL OFF 4. Batt Meter 5. Temp Meter 6. Bright Meter	
	Select “5. Temp Meter”.	===== Thermometer ===== °C AD=XX ← Displays AD value of temperature 50 – 40 – 30 – 20 – 10 – 0 – –10 – Shows temperature.	
	Press CLR.	Hit Any Key !!	
	Press any key.	Goes back to Menu ⑩.	
27. Bright Meter	Display <Menu ⑩>.	<Menu ⑩> PX-704 HARD TEST PROGRAM Version 1.00 1. BUZZER TEST 2. BL ON 3. BL OFF 4. Batt Meter 5. Temp Meter 6. Bright Meter	

Test menu	Operation	Result	Fault
	Select “6. Bright Meter”.	===== Light Sensor ===== % AD=XX ← Displays AD value of sensor.  Light level is usually 30~50 in the office.	
	Press CLR.	Hit Any Key !!	
	Press any key.	Goes back to Menu ⑩.	

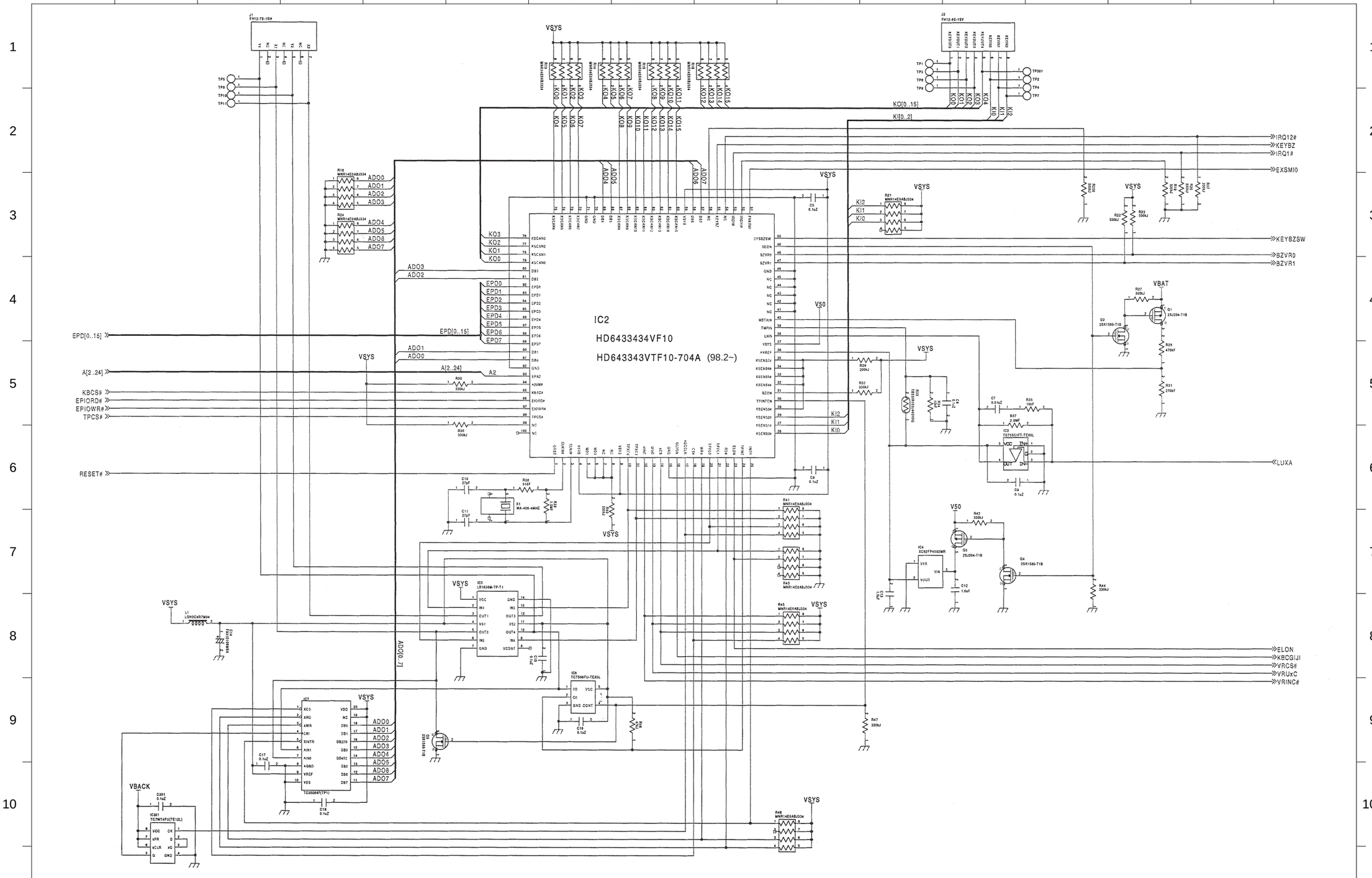
8. CIRCUIT DIAGRAMS

8.1 Curcuit diagram INDEX

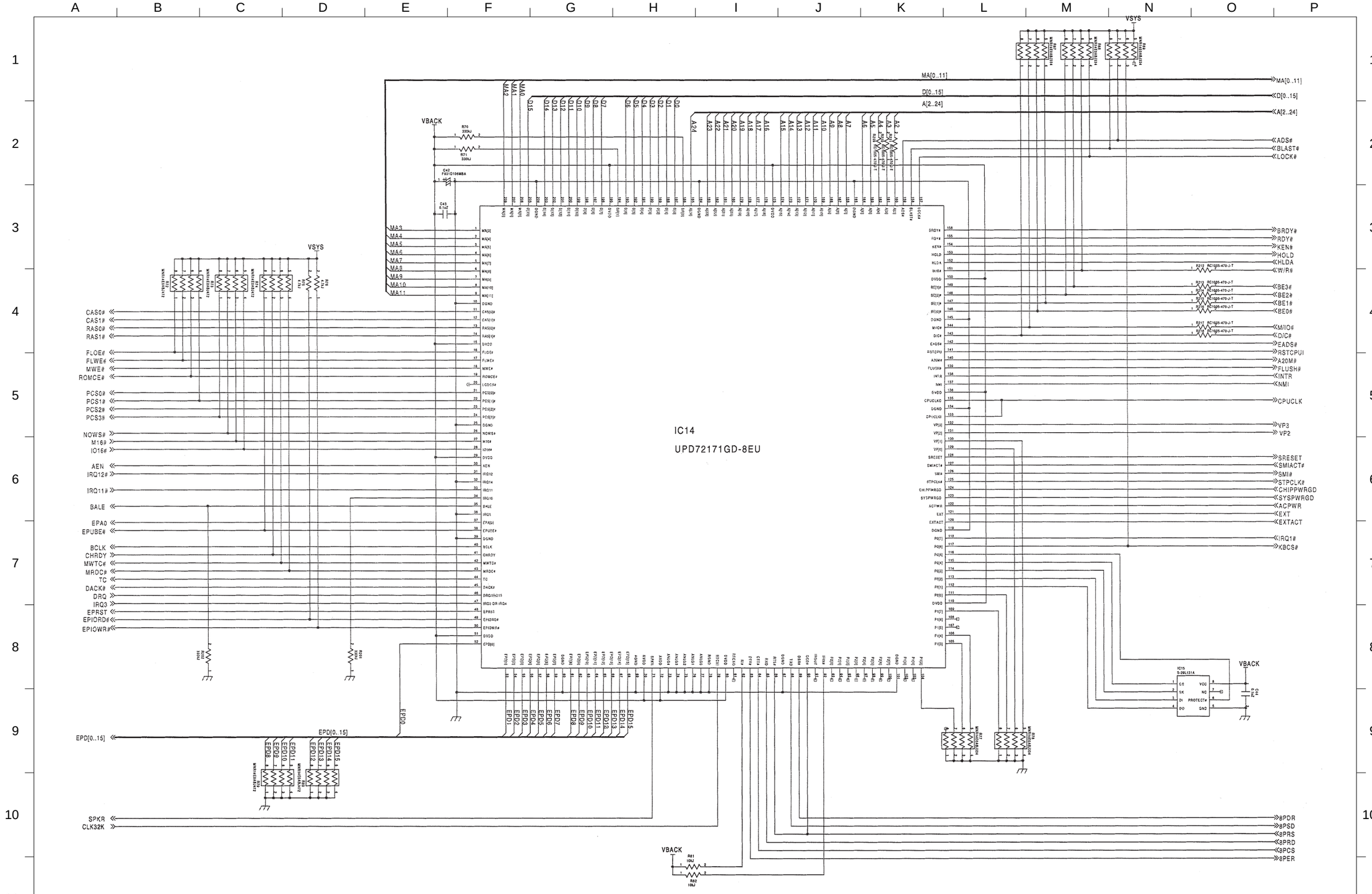
PCB		Description	Drawing No.
MAIN	P704-MAIN-1	CPU	C341962
		KBC	C341962
		CHIP_SET	C341962
		GA1	C341962
		GA2	C341962
		VGA	C341962
		PCMCIA	C341962
		DRAM/DINOR-FLASH	C341962
		MASK-ROM/NAND-FLASH	C341962
	P704-MAIN-2	LCD_POWER/EL	C341963
		CONNECTOR	C341963
SUB	P704-SUB	PCB CONNECTER	C341827
		VBACK/VSYS/VCORE	C341827
		SUPER_CAP/VCARD	C341827
		VIO/V50/CHARGE	C341827
		RS-232C/IrDA	C341827
LUX	P704-LUX	LUX/ON_KEY/BUZZER/CLS	C442504
BUZZER	P704-BZ	BUZZER	C442673
CAP	P704-CAP	SUPER CAPACITOR	C442506
BAT	P704-BAT	BATTERY CONNECTER	C442507
KEY	P704-KEY	KEY	C442503

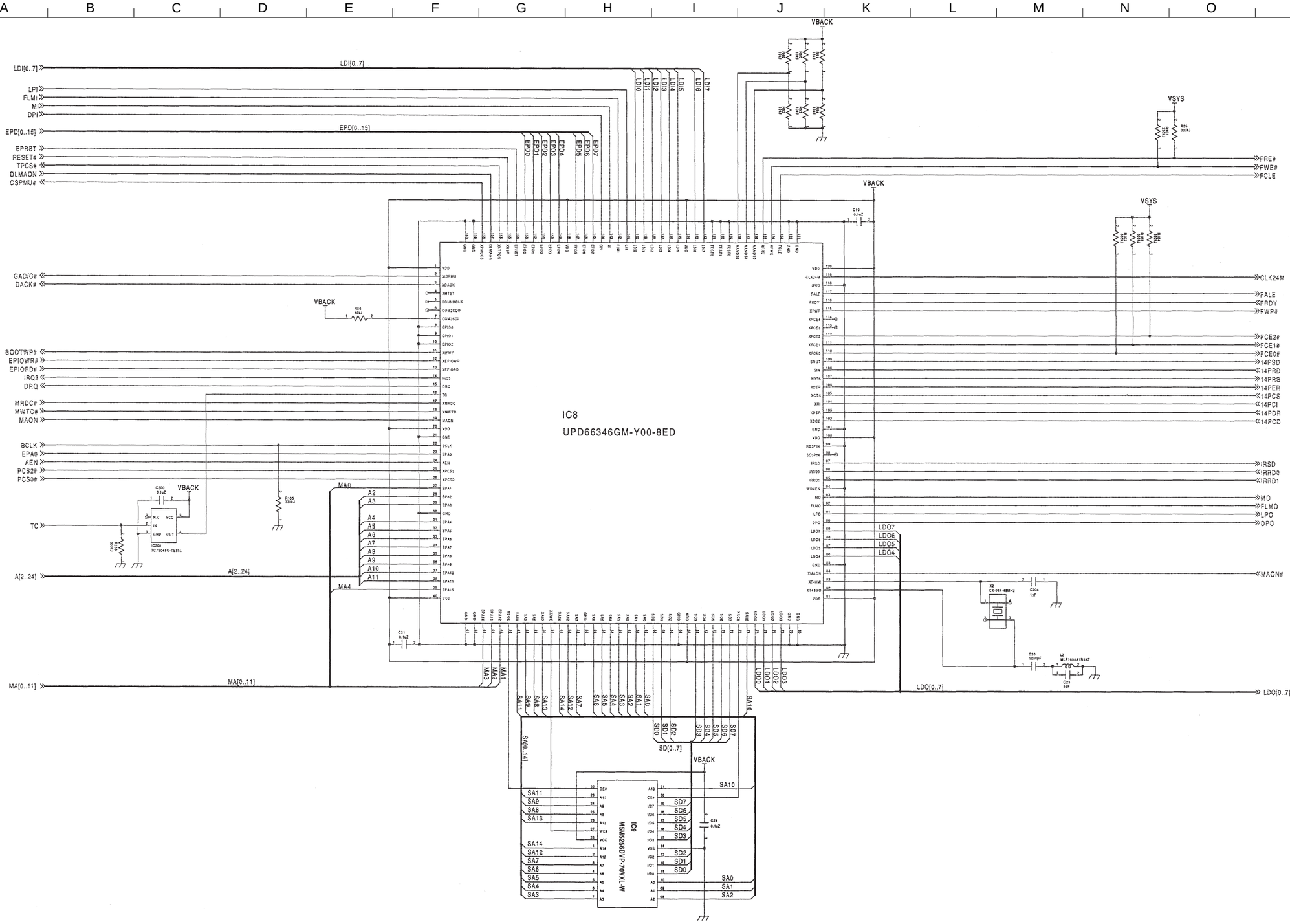


Description:	Board No.	Drawing No.
CPU	P704-MAIN-1Ⓒ (1/9)	C341962

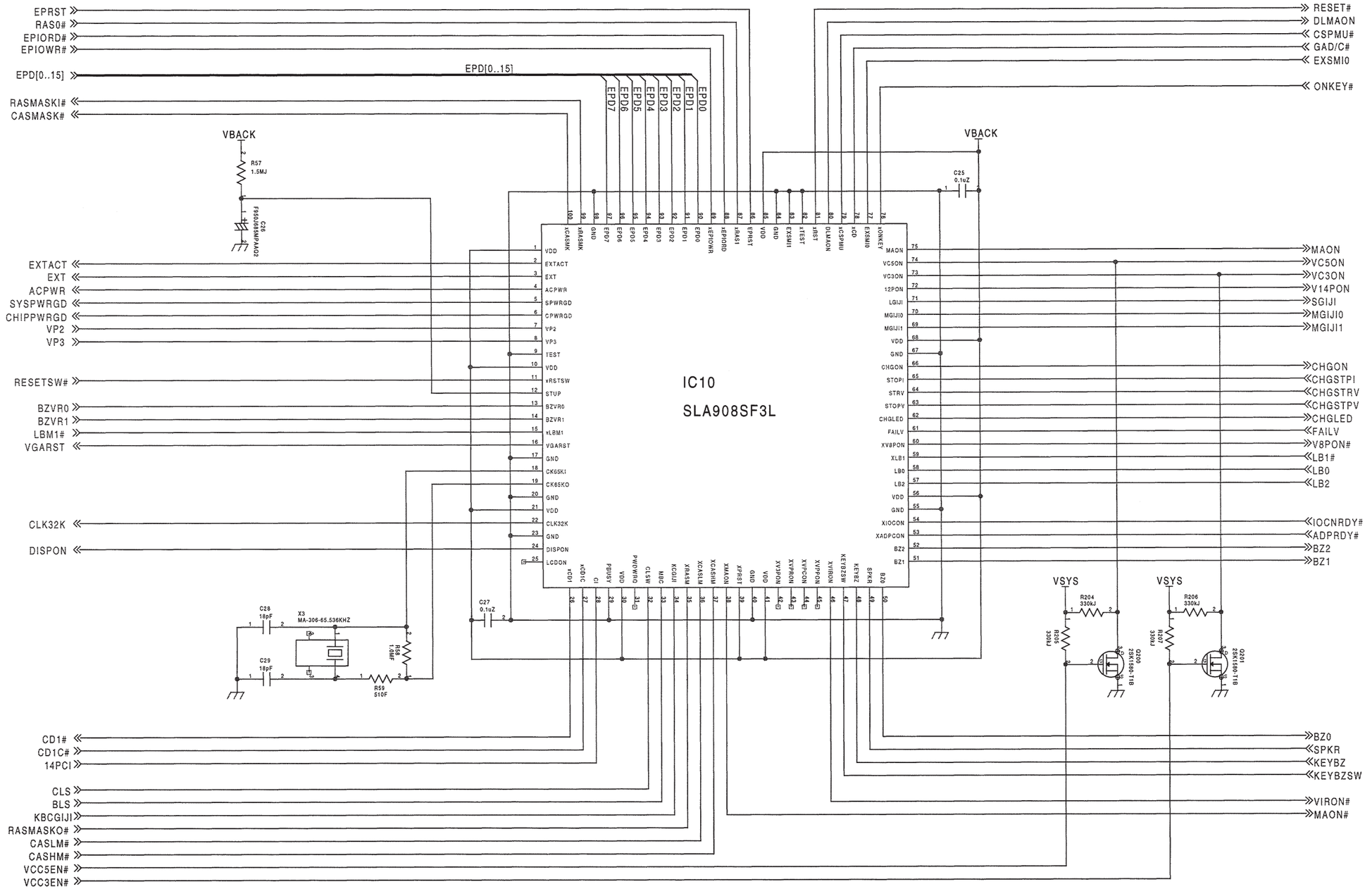


Description:	Board No.	Drawing No.
KBC	P704-MAIN-1Ⓒ (2/9)	C341962

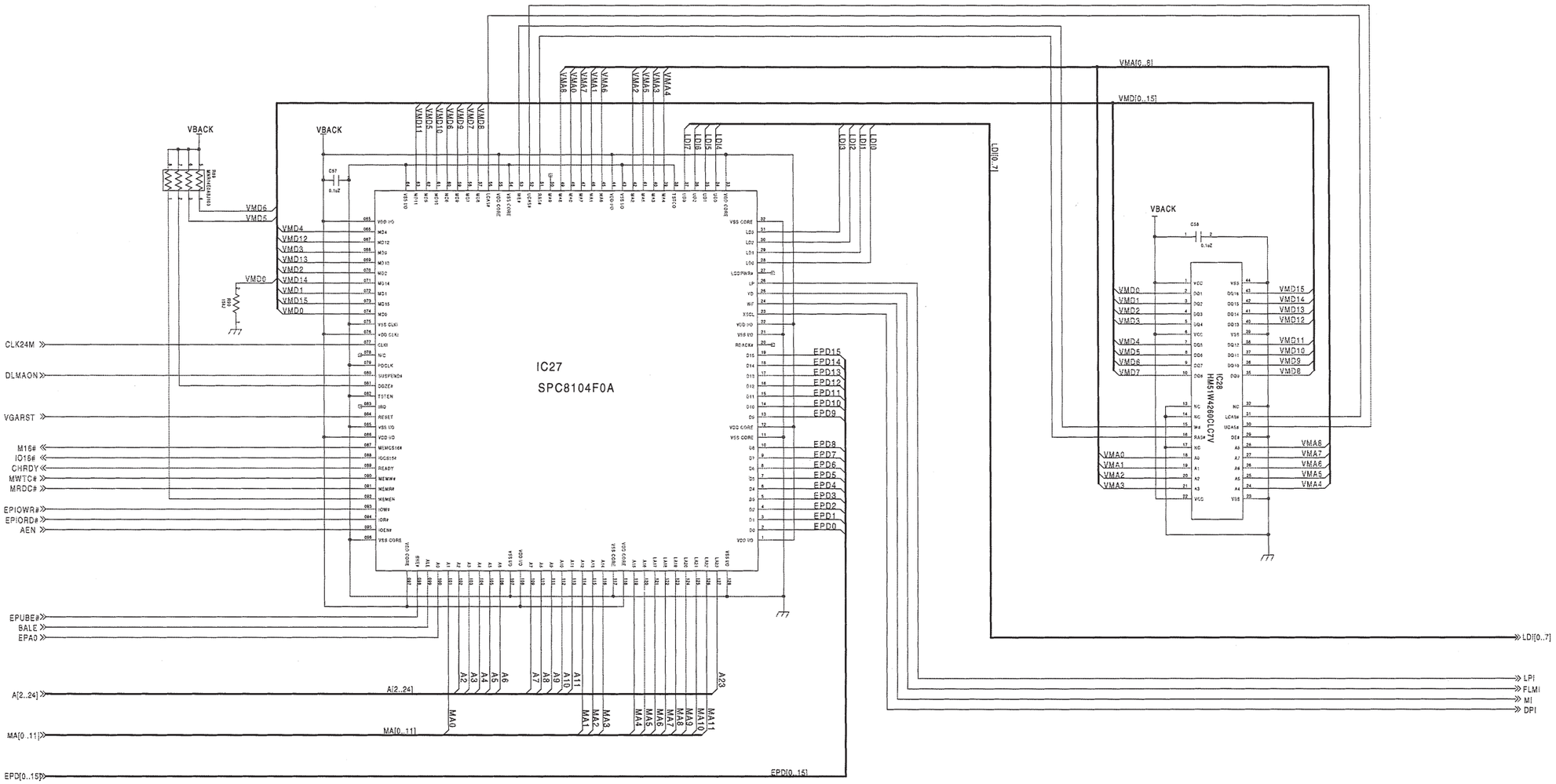

IC14
UPD72171GD-8EU
MA[0..11]
D[0..15]
A[2..24]
VSYS
VBACK
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
CAS0#
CAS1#
RAS0#
RAS1#
FLOE#
FLWE#
MWE#
ROMCE#
PCS0#
PCS1#
PCS2#
PCS3#
NOWS#
M16#
IO16#
AEN
IRQ12#
IRQ11#
BALE
EPA0
EPUBE#
BCLK
CHRDY
MWTC#
MRDC#
TC
DACK#
DRQ
IRQ3
EPRST
EPIORD#
EPIOWR#
EPD[0..15]
SPKR
CLK32K
BRDY#
RDY#
KEN#
HOLD
HLDA
W/R#
BE3#
BE2#
BE1#
BE0#
M/IO#
D/C#
EADS#
RSTCPU#
A20M#
FLUSH#
INTR
NMI
CPUCLK
VP3
VP2
SRESET
SMIACT#
SMI#
STPCLK#
CHIPPWRGD
SYSPWRGD
ACPWR
EXT
EXTACT
IRQ1#
KBCS#
BPDR
BPSD
BPRS
BPRD
BPCS
BPER
Description:
CHIP_SET
Board No.
P704-MAIN-1Ⓒ (3/9)
Drawing No.
C341962



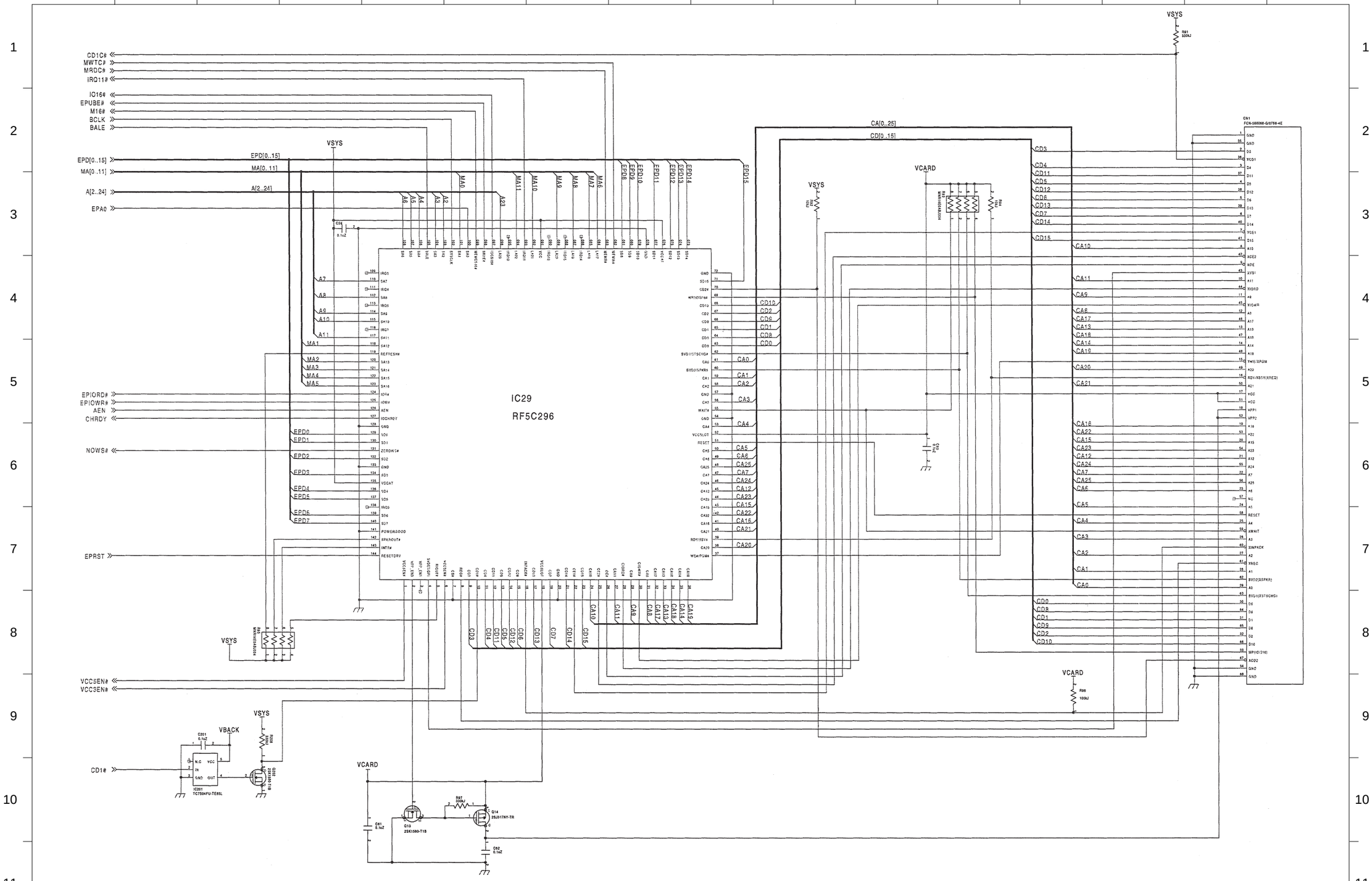
Description:	Board No.	Drawing No.
GA1	P704-MAIN-1Ⓒ (4/9)	C341962



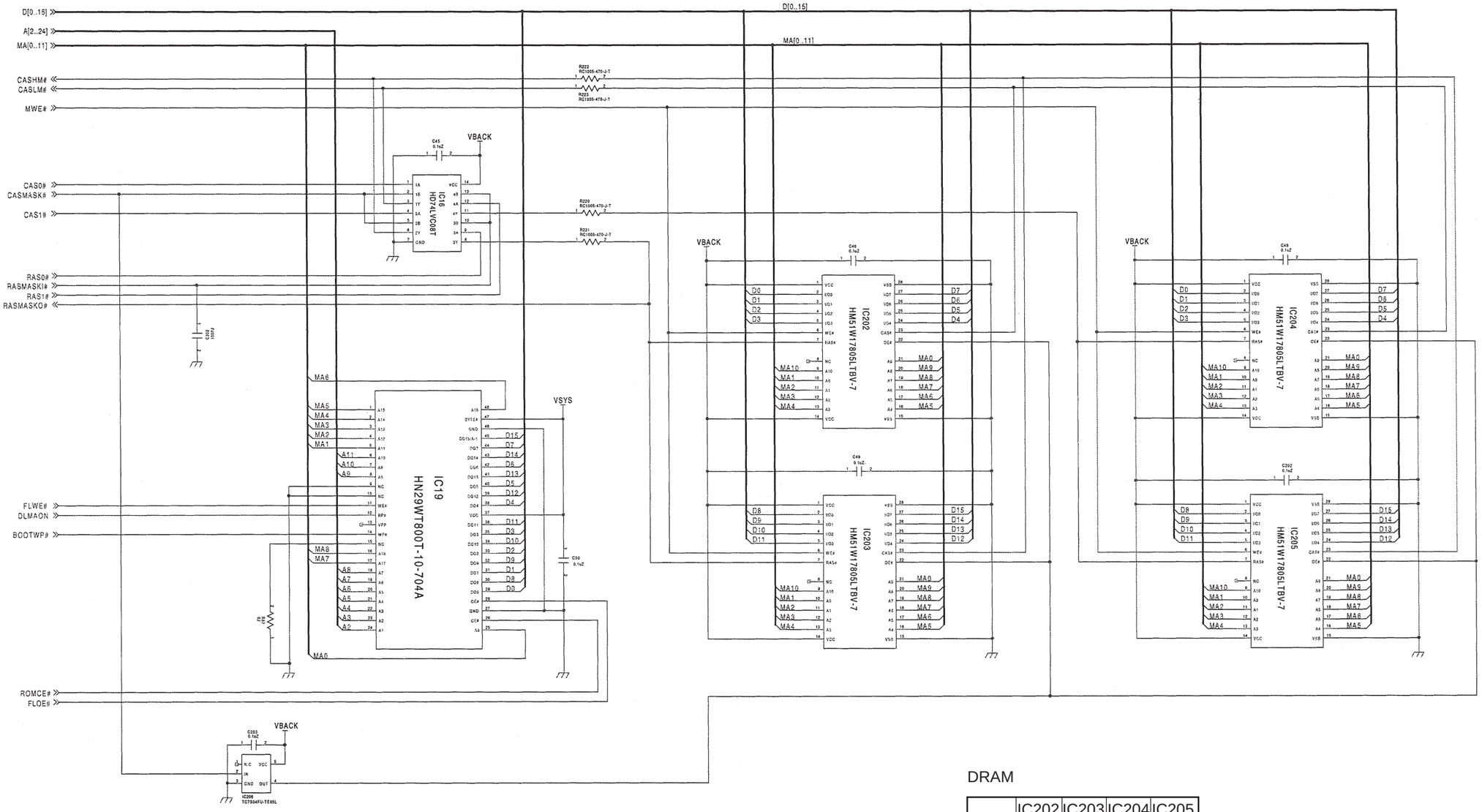
Description:	Board No.	Drawing No.
GA2	P704-MAIN-1Ⓒ (5/9)	C341962



Description:	Board No.	Drawing No.
VGA	P704-MAIN-1Ⓒ (6/9)	C341962



Description:	Board No.	Drawing No.
PCMCIA	P704-MAIN-1Ⓒ (7/9)	C341962



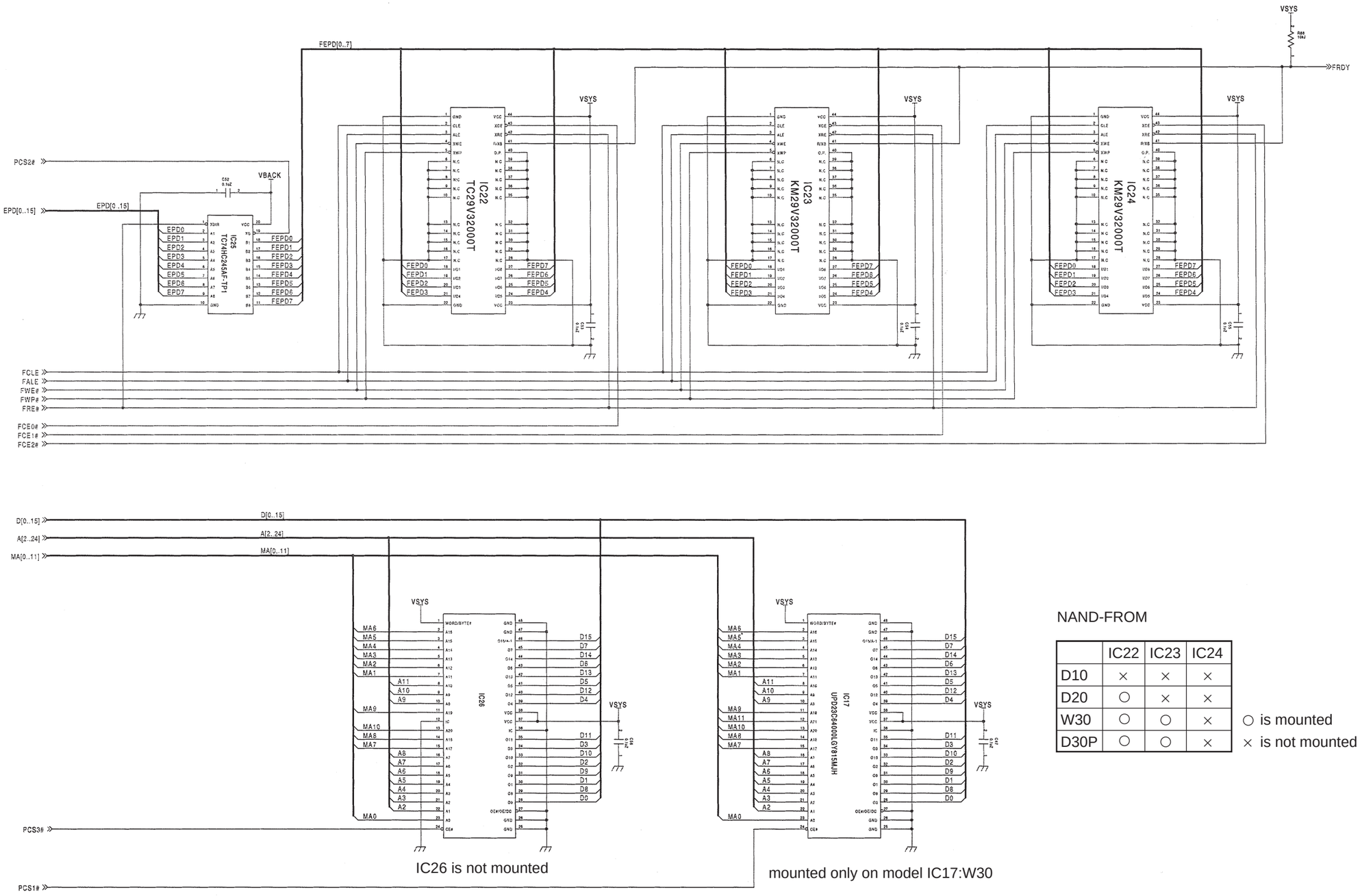
DRAM

	IC202	IC203	IC204	IC205
D10	○	○	×	×
D20	○	○	×	×
W30	○	○	×	×
D30P	○	○	×	×

○ is mounted

× is not mounted

Description:	Board No.	Drawing No.
DRAM/DINOR-FLASH	P704-MAIN-1Ⓒ (8/9)	C341962

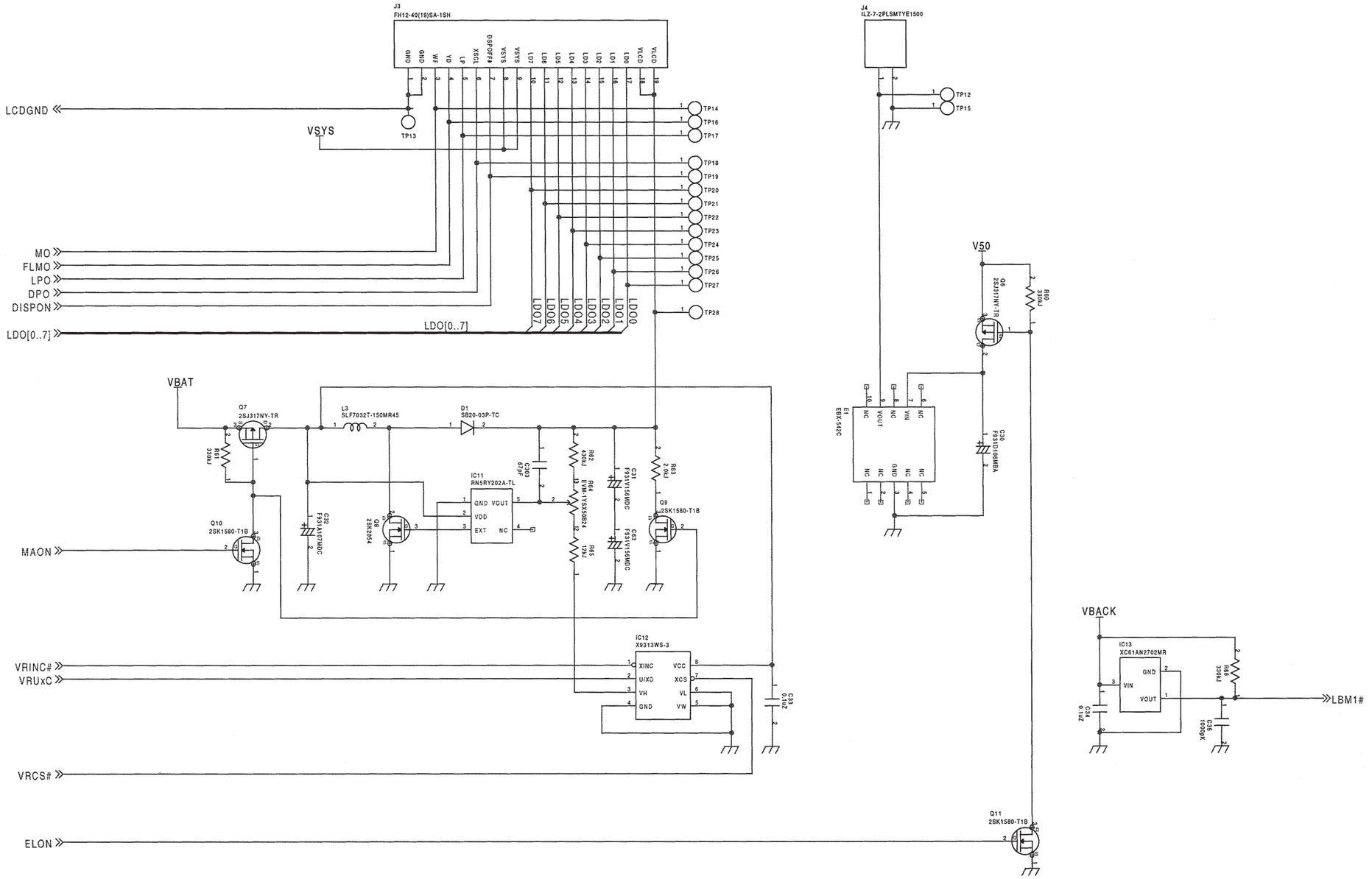


NAND-FROM

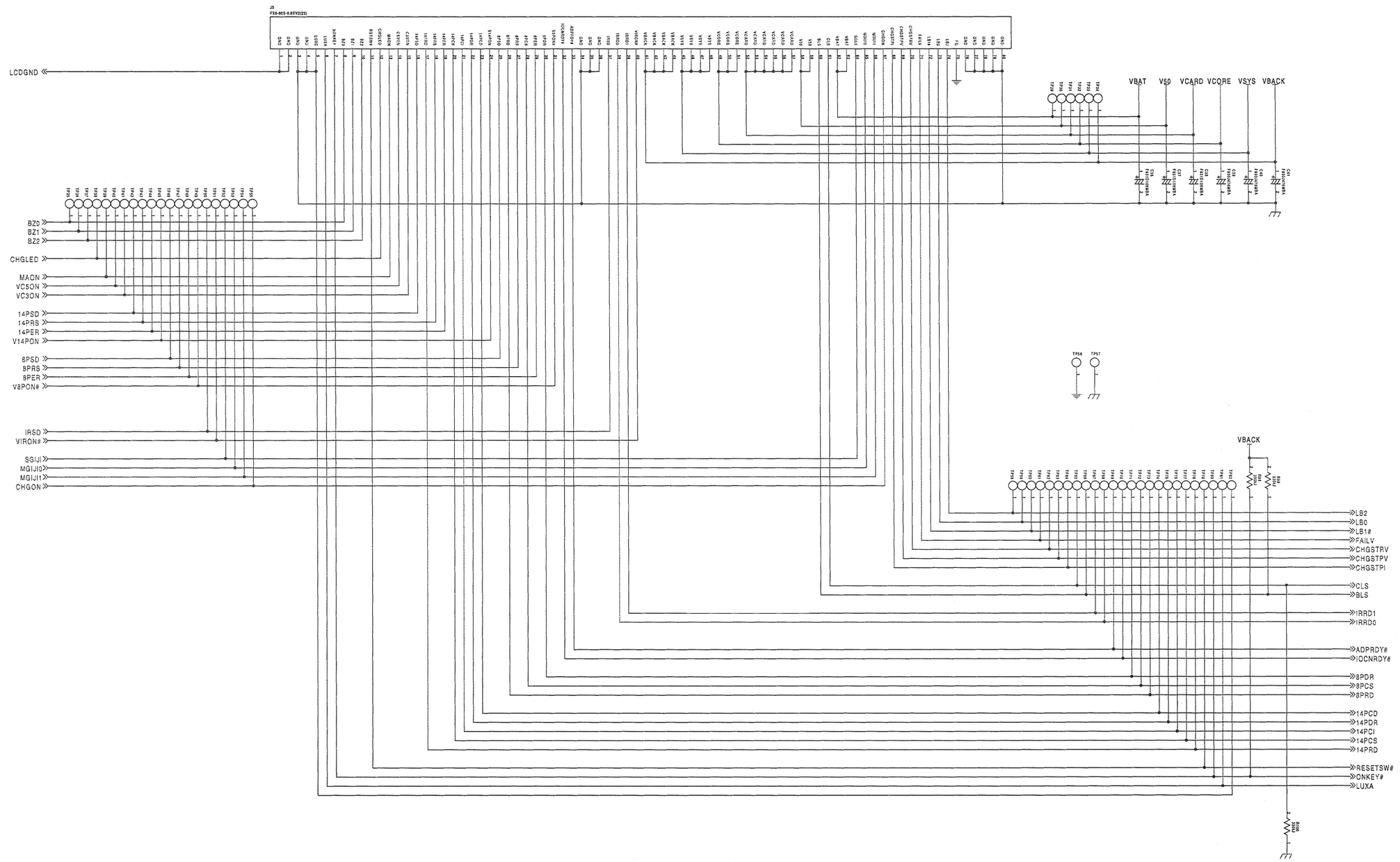
	IC22	IC23	IC24
D10	×	×	×
D20	○	×	×
W30	○	○	×
D30P	○	○	×

○ is mounted
× is not mounted

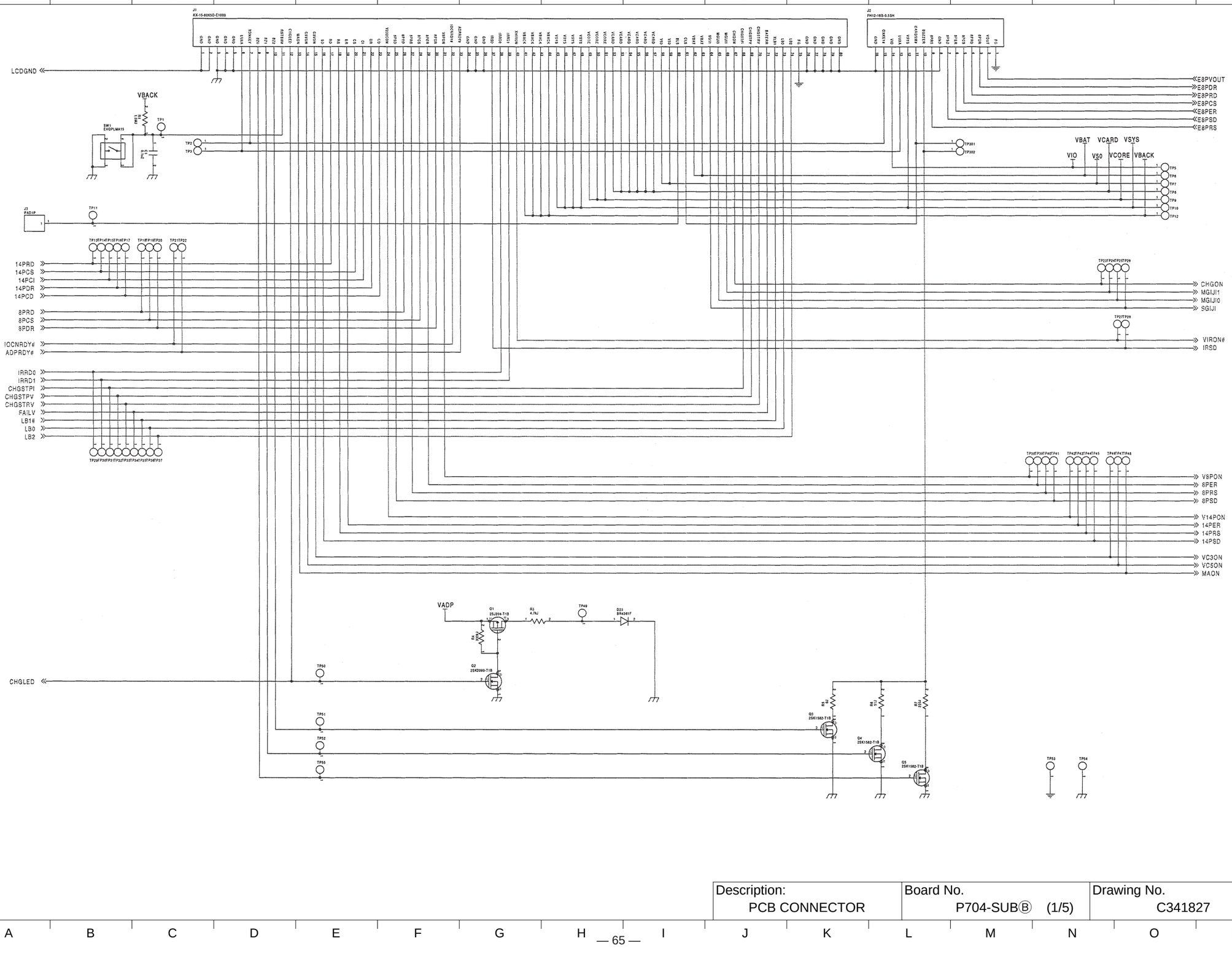
Description:	Board No.	Drawing No.
MASK-ROM/NAND-FLASH	P704-MAIN-1Ⓒ (9/9)	C341962



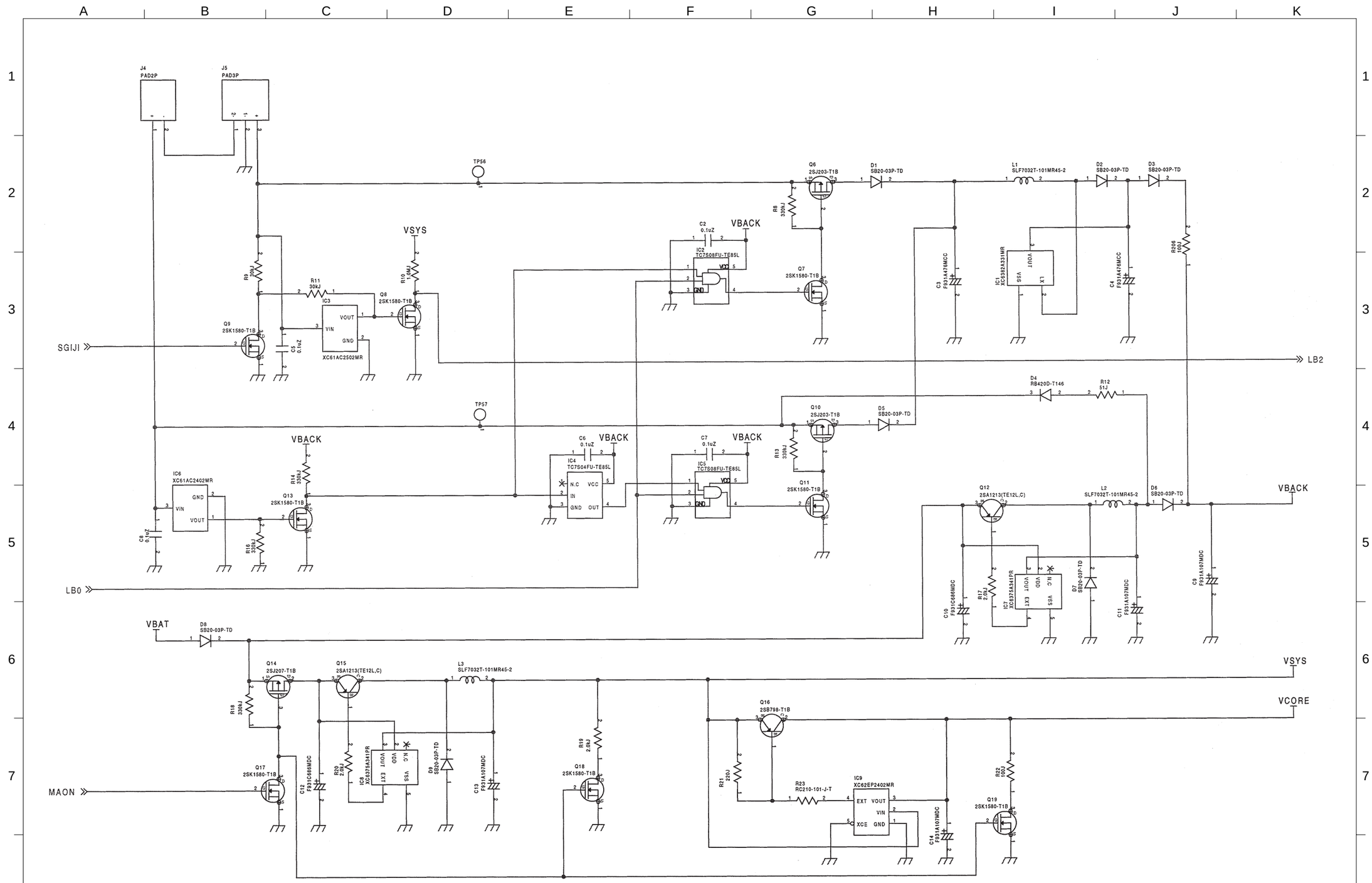
Description:	Board No.	Drawing No.
LCD_POWER/EL	P704-MAIN-2Ⓒ (1/2)	C341963



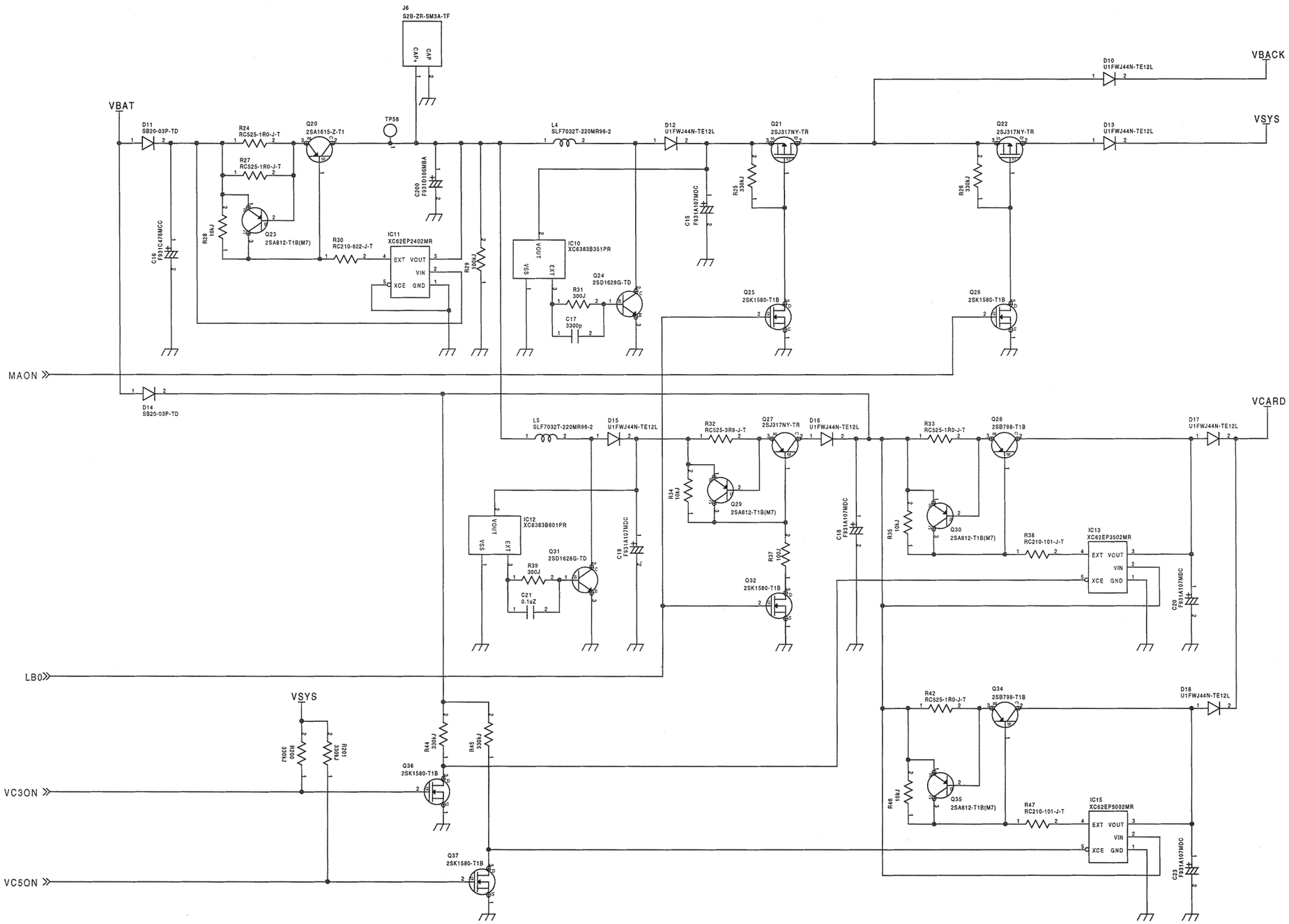
Description:	Board No.	Drawing No.
CONNECTOR	P704-MAIN-2Ⓒ (2/2)	C341963



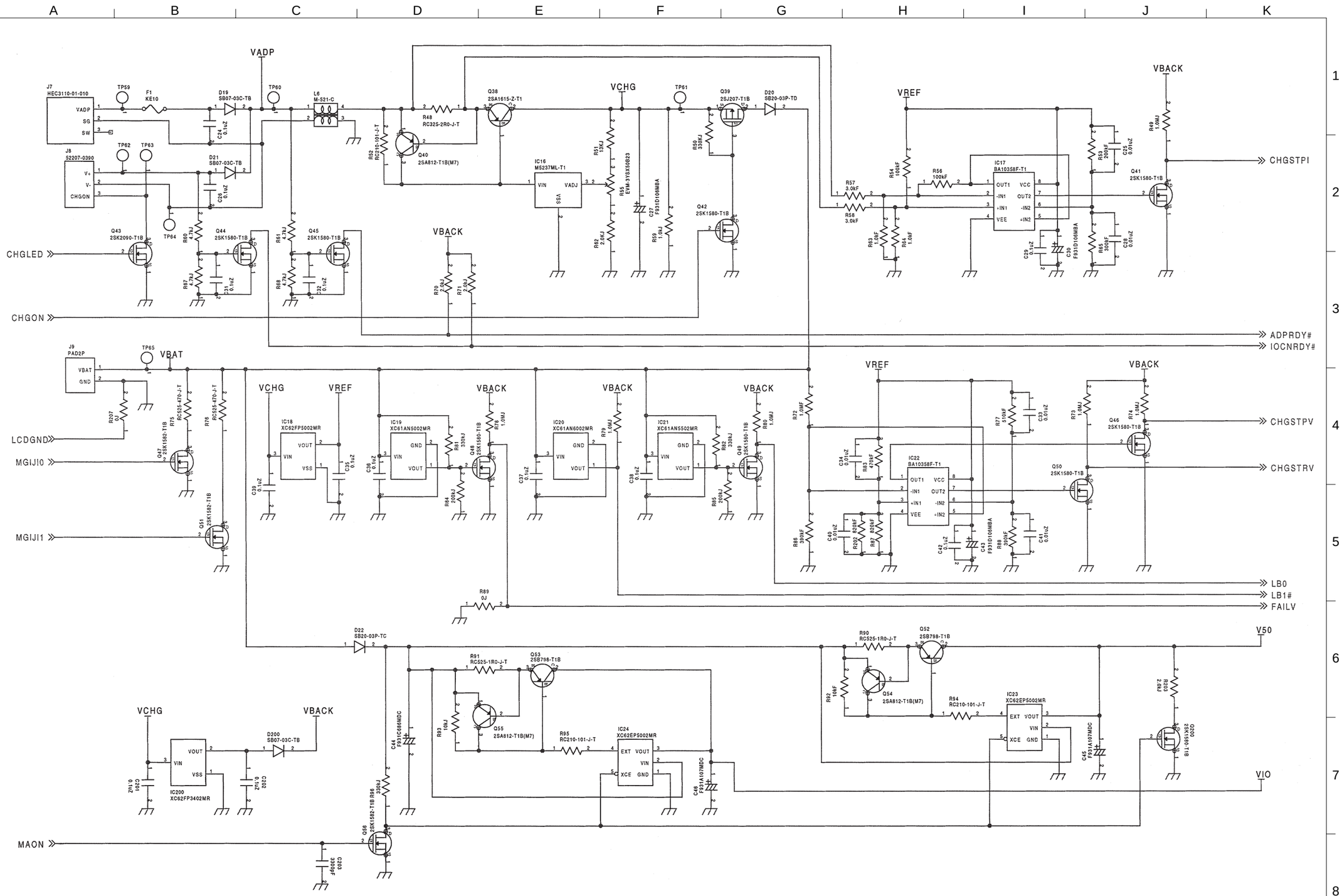
Description:	Board No.	Drawing No.
PCB CONNECTOR	P704-SUBⒷ (1/5)	C341827



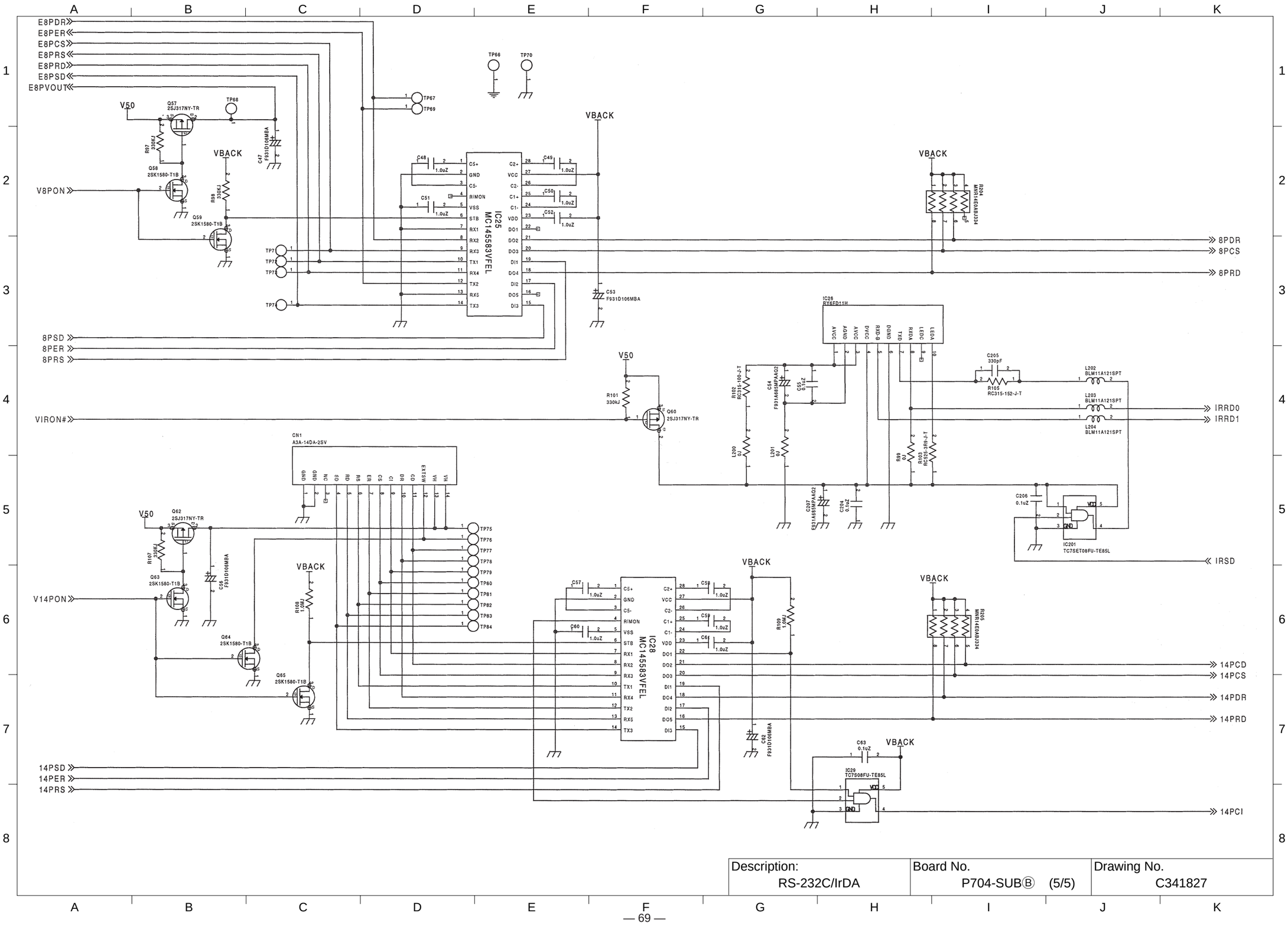
Description:	Board No.	Drawing No.
VBACK/VSYS/VCORE	P704-SUBⒷ (2/5)	C341827



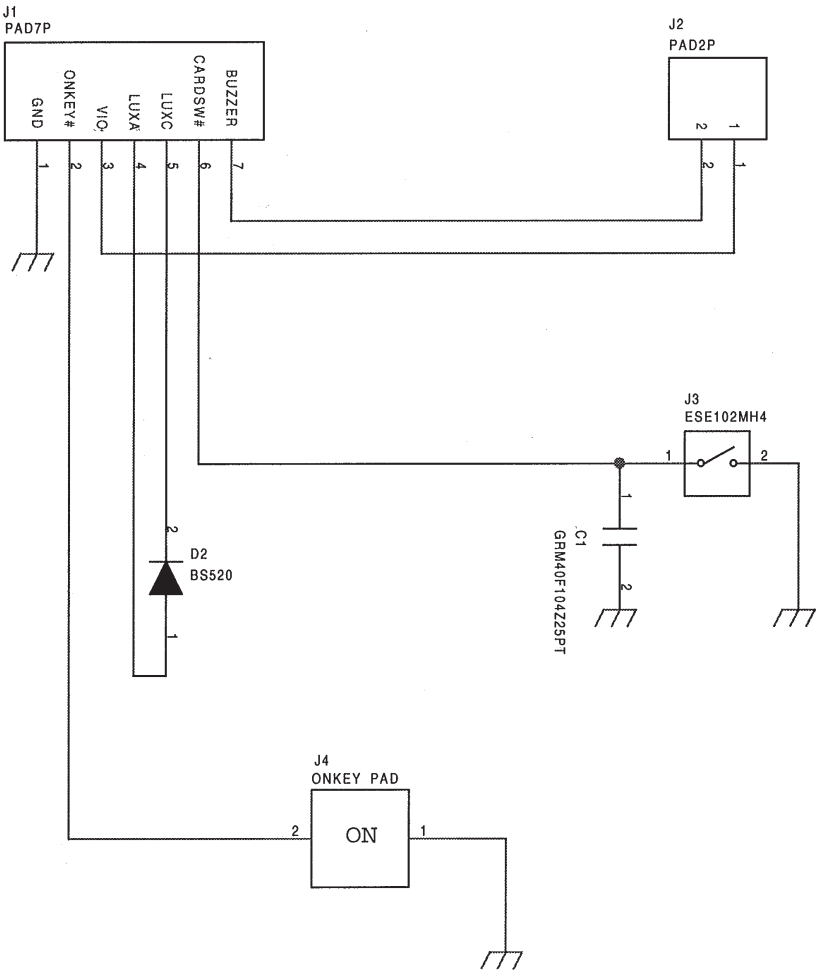
Description:	Board No.	Drawing No.
SUPER_CAP/VCARD	P704-SUBⒷ (3/5)	C341827



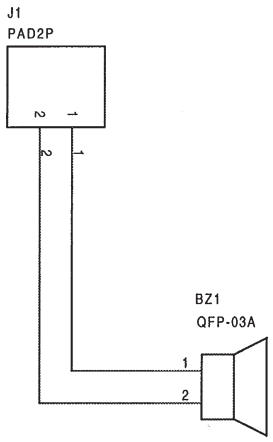
Description:	Board No.	Drawing No.
VIO/V50/CHARGE	P704-SUBⒷ (4/5)	C341827



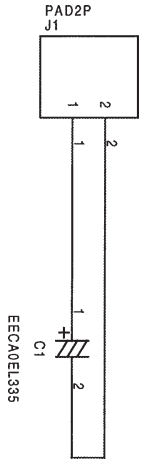
Description:	Board No.	Drawing No.
RS-232C/IrDA	P704-SUBⒷ (5/5)	C341827



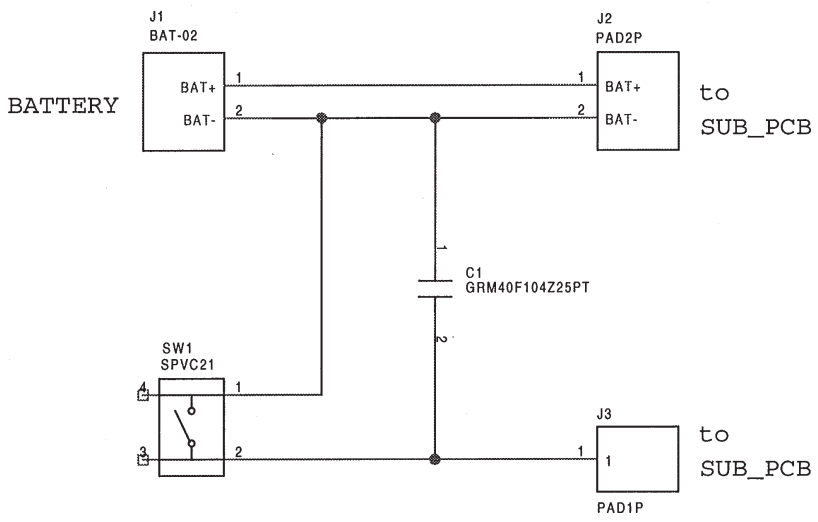
Description:	Board No.	Drawing No.
LUX/ON_KEY/BUZZER/CLS	P704-LUXⓒ	C442504



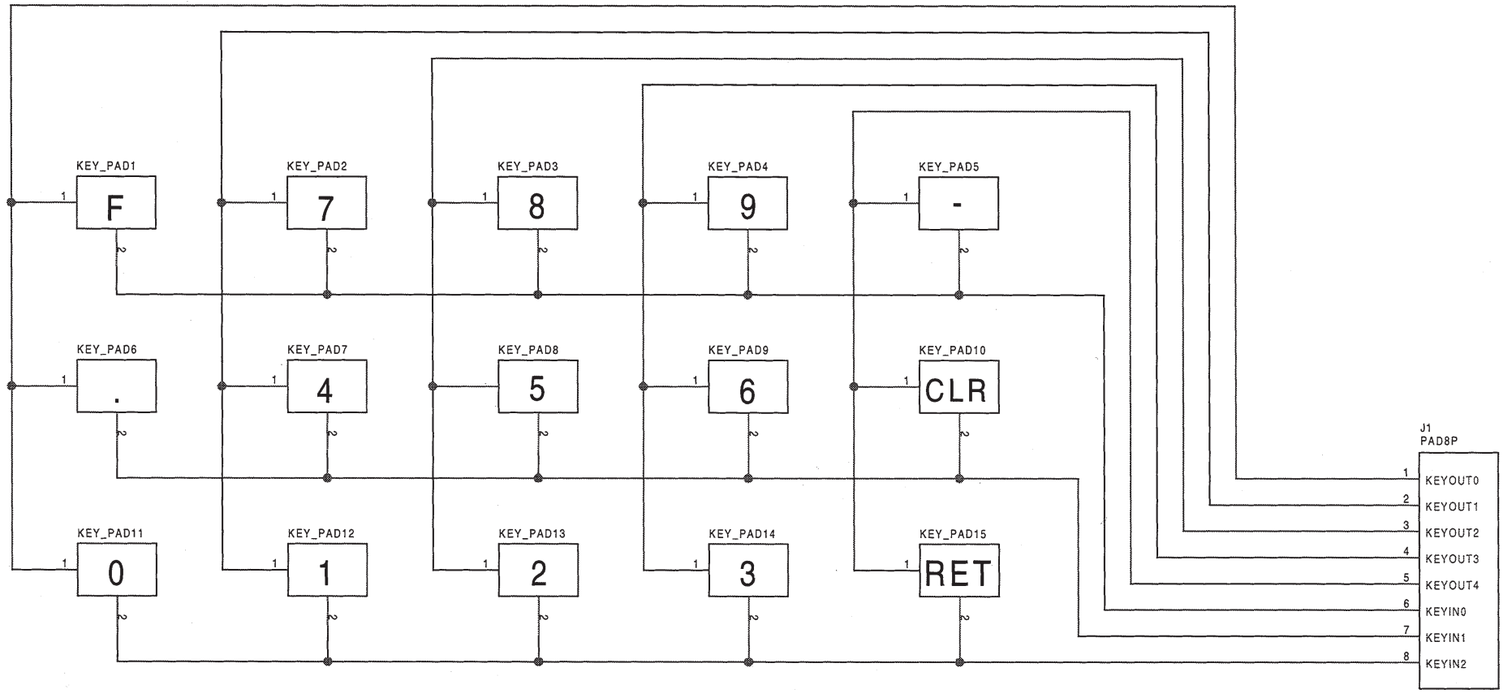
Description:	Board No.	Drawing No.
BUZZER	P704-BZ	C442673



Description:	Board No.	Drawing No.
SUPER CAPACITOR	P704-CAPⒷ	C442506

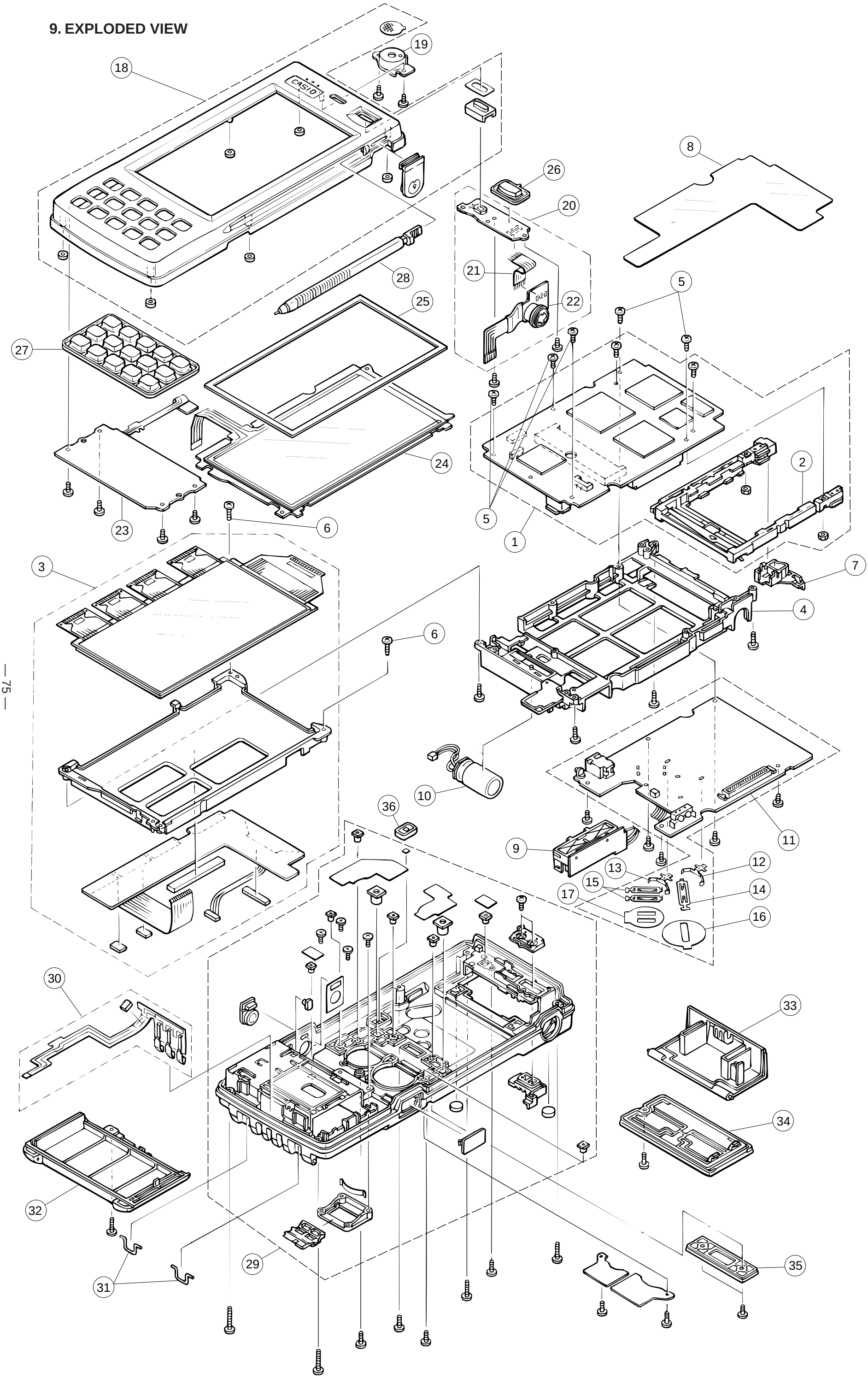


Description:	Board No.	Drawing No.
BATTERY CONNECTOR	P704-BATⒷ	C442507



Description:	Board No.	Drawing No.
KEY	P704-KEYⒷ	C442503

9. EXPLODED VIEW



10. PARTS LIST

Notes:

1. The numbers in the item column correspond to the same numbers in exploded view.
2. MARKS:

   Q: Quantity used per unit

   R: Rank
   - A: Essential
   - B: Stock recommended
   - C: Less recommended
   - X: No stock recommended

IT-2000

Item		Code No.	Parts Name	Specification	Version	Q	R
Middle Case Block							
1		6541 7808	MAIN ASSY	C140528*12	D10	1	A
1		6541 7809	MAIN ASSY	C140528*13	D20	1	A
1		6541 7803	MAIN ASSY	C140528*7	W30	1	A
1		6541 7810	MAIN ASSY	C140528*14	D30P	1	A
		3122 3241	TRANS/INVERTER	EBX-542C		1	B
		5860 9989	SCREW	2X8 NI		2	X
		6512 6655	PLATE/SHIELD A	C341626-1		1	X
		6512 6649	INSULATION SEAL B	C442227-1		1	X
		6512 6928	INSULATION SEAL D	C442393-1		1	X
		6512 6931	INSULATION SEAL F	C442467-1		1	X
	IC3	2105 6318	IC/MOS	TC75S51FT-TE85L		1	B
	IC6	2105 3388	IC/MOS	TC7S66FU-TE85L		1	B
	IC5	2105 5257	IC	LB1836M-TE-L		1	B
	IC1	2012 5618	LSI/CPU	FA80486GXSF-33		1	B
	IC2	2012 5684	LSI/KBC	HD643343VF10		1	B
	IC28	2012 5685	LSI/DRAM	HM51W4260CLC7V		1	B
	IC9	2012 5735	LSI/SRAM	SRM2B256SLTMX70		1	B
	IC19	2012 5944	LSI	HN29WT800T-10-704A		1	B
	IC29	2012 5623	LSI/PCMCIA CONTROLLER	RF5C296		1	B
	IC15	2012 5687	LSI/SERIAL EEPROM	S-29L131AFS-TB		1	B
	IC10	2012 5617	LSI/GATE ARRAY	SLA908SF3L		1	B
	IC27	2012 5625	LSI/VGA CONTROLLER	SPC8104F0A		1	B
	IC7	2011 7959	LSI	TC35084F(TP1)		1	B
	IC22	2012 4340	LSI/FLASH-ROM	KM29V32000T	D20	1	C
	IC22,23	2012 4340	LSI/FLASH-ROM	KM29V32000T	D30P,W30	2	C
	IC202,203	2012 5688	LSI/DRAM	HM51W17805LTBV-7		2	B
	IC8	2012 5626	LSI/GATE ARRAY	UPD66346GM-Y00-8ED		1	B
	IC14	2012 5627	LSI/CHIP SET	UPD72171GD-8EU		1	B
	IC25	2101 0251	IC/MOS	TC74HC245AF-TP1		1	C
	IC16	2105 6359	IC/MOS	HD74LVC08TEL		1	C
	IC11	2105 6316	IC/MOS	RN5RY202A-TL		1	B
	IC13	7720 5103	IC/MOS	XC61AN2702MR		1	B
	IC4	2105 6319	IC/MOS	XC62FP4502MR		1	B
	IC12	2105 6360	IC	X9313WS-3T6		1	B
	L3	3841 2165	COIL	SLF7032T-150M1R1-2		1	B
	J2	3502 2286	CONNECTOR	FH12-8S-1SV		1	C
2	CN1	3502 2258	CONNECTOR (PCMCIA)	FCN568P06BG/07884E		1	C
	J4	3502 1403	CONNECTOR	ILZ-7-2PLSMTYE1500		1	C
	J3	3502 2259	CONNECTOR	FH12-40(19)SA-1SH		1	C
	J1	3501 9744	CONNECTOR	FH12-7S-1SH		1	C
	J5	3502 2287	CONNECTOR	KX14-80K8D-E650		1	C
	X2	2590 2710	OSCILLATOR/CRYSTAL	CX-91F48MHZ-S		1	C
	X1	2590 2703	OSCILLATOR/CRYSTAL	MA-406-4MHZ		1	C
	X3	2590 2711	OSCILLATOR/CRYSTAL	MC-306-65.536KHZ		1	C
	Q1,3	2259 1596	FET	2SJ204-T1B		2	B
	Q6,7,14	2259 2072	FET	2SJ317NY-TR		3	B
	Q2,4,5,9,10,11,13, Q200-202	2254 0336	FET	2SK1580-T1B		10	B
	Q8	2250 1583	FET	2SK2054-T1		1	B
	R89	2775 3288	RESISTOR/CHIP NETWORK	MNR14E0ABJ103		1	X
	R1-3,9-16,18,21,24, R41,43,45,48,67-69, R77,78,93,95	2795 7885	RESISTOR/CHIP NETWORK	MNR14E0ABJ334		25	X
	R72-74,79,80	2775 3289	RESISTOR/CHIP NETWORK	MNR14E0ABJ472		5	X

Item		Code No.	Parts Name	Specification	Version	Q	R
	R64	2765 2188	POTENTIOMETER/CHIP	EVM-3YSX50B24		1	B
	L1	3841 1526	INDUCTOR	LQH3C4R7M04		1	C
	IC17	2012 5883	LSI/MASK ROM	D23C64000LGY815MJH	W30	1	B
	IC200,201,206	2105 6321	IC/MOS	TC7S04FU-TE85L		3	B
	IC301	2105 5215	IC/MOS	TC7W74FU(TE12L)		1	B
3		6540 0227	LCD ASSY	C140527*1(HOSYU)F		1	A
4		6514 0300	CASE/MIDDLE	C140514-1		1	X
5		6331 6670	SCREW	A33953-3		5	X
6		6333 9680	SCREW	A33953-9		2	X
7		6514 0308	EJECTOR	C341430-1		1	
8		6514 0355	INSULATION SEAL	C442019-1		1	X
9		6541 7795	BAT ASSY	C442063*1		1	C
10		6541 7796	CAPACITOR ASSY	C442064*1		1	C
SUB PCB Block							
11		6541 7790	SUB ASSY	C140529*1		1	A
	J7	3501 5103	JACK/POWER	HEC3110-01-010		1	C
	IC26	2370 1399	IC/HYBRID IRDA	RY6FD1SH		1	C
	D23	3335 6555	LED	BR4361F		1	B
	CN1	3501 8358	CONNECTOR (14 pin I/F)	A3A-14DA-2SV		1	C
		6512 7073	LABEL/CAUTION	C442016A-1		1	X
12		6512 8650	SPRING	C312171-1		1	C
13		6512 8770	SPRING	C413392-1		1	C
14		6511 0770	SPRING/BATTERY	C311380-1		1	C
15		6511 0780	SPRING/BATTERY	C412183-1		2	C
16		6512 8800	INSULATION SEAL	C413399-1		1	X
17		6512 8790	INSULATION SEAL	C413398-1		1	X
	IC4	2105 6321	IC/MOS	TC7S04FU-TE85L		1	B
	IC2,5,29	2105 3521	IC/MOS	TC7S08FU-TE85L		3	B
	IC25,28	2012 5543	IC/MOS	MC145583VFEL		2	C
	IC3	2105 6322	IC/MOS	XC61AC2502MR		1	B
	IC6	2105 6361	IC/MOS	XC61AC2402MR		1	B
	IC19	2105 6324	IC/MOS	XC61AN5002MR		1	B
	IC21	2105 5649	IC/MOS	XC61AN5502MR		1	B
	IC200	2105 6362	IC/MOS	XC62FP3402MR		1	B
	IC20	2105 3724	IC/MOS	XC61AN6002MR		1	B
	IC9,11	2105 6326	IC/MOS	XC62EP2402MR		2	B
	IC13	2105 6289	IC/MOS	XC62EP3502MR		1	B
	IC15,23,24	2105 6327	IC/MOS	XC62EP5002MR		3	B
	IC18	2105 6328	IC/MOS	XC62FP5002MR		1	B
	IC7,8	2105 6363	IC/MOS	XC6375A341PR		2	B
	IC1	2105 6364	IC/MOS	XC6382A331MR		1	B
	IC10	2105 6365	IC/MOS	XC6383B351PR		1	B
	IC12	2105 5677	IC/MOS	XC6383B601PR		1	B
	IC17,22	2116 0119	IC/LINEAR	BA10358F-T1		2	B
	L1-3	3841 1981	COIL	SLF7032T-101MR45-2		3	C
	L4,5	3841 2164	COIL	SLF7032T-220MR96-2		2	C
	J2	3502 2288	CONNECTOR	FH12-16S-0.5SH		1	C
	J1	3502 2263	CONNECTOR	KX-15-80K2D-E1000		1	C
	L6	3025 1176	FILTER	M-521C		1	C
	SW1	3412 2078	SWITCH	EVQPLMA15		1	C
	R204,205	2795 7885	RESISTOR/CHIP NETWORK	MNR14E0ABJ334		2	X
	Q23,29,30,35,40,54, Q55	2259 2037	TRANSISTOR	2SA812-T1B(M7)		7	B
	Q16,28,34,52,53	2250 1197	TRANSISTOR	2SB798-T1B		5	B
	Q31,24	2253 0679	TRANSISTOR	2SD1628G-TD		2	B

Item		Code No.	Parts Name	Specification	Version	Q	R
	Q6,10	2259 1953	FET	2SJ203-T1B		2	B
	Q1	2259 1596	FET	2SJ204-T1B		1	B
	Q14,39	2259 2016	FET	2SJ207-T1B		2	B
	Q21,22,27,57,60,62	2259 2072	FET	2SJ317NY-TR		6	B
	Q7-9,11,13,17-19,25, Q26,32,36,37,41,42, Q44-46,48-50,58,59, Q63-65,200	2254 0336	FET	2SK1580-T1B		27	B
	Q3-5,47,51,56	2254 0266	FET	2SK1582-T1B		6	B
	F1	3632 0630	FUSE/CHIP	KE10		1	A
	R55	2765 2189	POTENTIOMETER	EVM-3YSX50B23		1	B
	Q12,15	2250 1386	TRANSISTOR	2SA1213(TE12L,C)		2	B
	Q20,38	2250 0749	TRANSISTOR	2SA1615-Z-T1		2	X
	J6	3501 9149	CONNECTOR/PCB	S2B-ZR-SM3A-TF		1	C
	IC16	2114 2905	IC/LINEAR	M5237ML-T1		1	B
	IC201	2105 6394	IC/MOS	TC7SET08FU-TE85L		1	B
	L202-204	3045 0240	INDUCTOR	BLM11A121SPT		3	C
	J8	3502 2321	CONNECTOR	52207-0390		1	B
	Q2,43	2254 0556	FET	2SK2090-T1B		2	B
Upper Case Block							
18		6540 0219	CASE ASSY/UPPER	C240988*1(HOSYU)A		1	C
19		6541 7827	BZ ASSY	C442066*1		1	C
20		6541 7828	LUX ASSY	C341466*1		1	C
		2390 2177	DIODE/PHOTO	BS520		1	C
21		6512 6635	CABLE/FFC	C442165-1		1	C
		3412 2079	SWITCH/PUSH	ESE102MH1		1	C
22		6541 7831	SIF ASSY	C442065*1		1	B
23		6541 7829	KEY ASSY	C341464*1		1	C
24		6541 7830	TOUCH PANEL ASSY	C341465*1		1	A
25		6512 6912	RUBBER/PACKING	C441985A-1		1	A
26		6514 0313	RUBBER/KEY ON	C341423-1		1	C
27		6514 0304	RUBBER/KEY	C240504A-4		1	C
		6514 0346	PLATE/BRIND	C442005-1		1	X
28		6514 0297	PEN SUB ASSY	C340664*3		1	A
Lower Case Block							
29		6540 0223	CASE ASSY/LOWER	C240989*1(HOSYU)B		1	C
30		6540 0226	CHRGING TERMINAL	C240989*1(HOSYU)E		1	A
31		6514 0332	SHAFT/STRAP	C441990-1		2	A
32		6514 0301	COVER/BATTERY	C140515-1	D10,D20,W30	1	A
32		6514 0302	COVER/BATTERY	C140515-2	D30P	1	A
33		6514 0306	COVER/CARD A	C240955-1	D10,D20,W30	1	C
33		6512 7036	COVER/CARD C	C241083-1	D30P	1	C
33		6512 7034	PACKING/CB-P704SP	C442480-1	D30P	1	C
34		6540 0224	SUB BATTERY ASSY	C140525*1(HOSYU)*C		1	B
35		6540 0225	CN COVER ASSY	C140525*1(HOSYU)*D		1	C
36		6514 0326	CAP/RESET	C441983-1		1	C

CASIO TECHNO CO.,LTD.
Overseas Service Division

8-11-10, Nishi-Shinjuku
Shinjuku-ku, Tokyo 160-0023, Japan